Investigations of Changes in Farm Programs

INVESTIGATIONS OF CHANGES IN FARM PROGRAMS. U.S. Department of Agriculture.
February 1988.

ABSTRACT

This report examines an agricultural program that supports prices for basic
agricultural commodities at cost of production levels using nonrecourse loans,
subsidizes farm exports to regain and retain a fair share of world markets,
maintains adequate stocks to stabilize markets, and implements mandatory
production controls to balance supply and use. Public Law 100-71, the
Supplemental Appropriations Act of 1987, directed the Secretary of Agriculture
to investigate three aspects of this program. These include producer sentiment
regarding mandatory production controls and cost-linked prices; quantities
needed for domestic consumption, exports, and stocks; and changes needed in
rules and regulations. This report summarizes findings in these three areas
and provides information on possible economic effects. Results show that
producers historically have indicated varying degrees of support for mandatory
controls. Market needs and effects depend on numerous program implementation
details. Such a program would require changes in a wide range of statutes and
U.S. Department of Agriculture rules and regulations.

CONTENTS

This report examines an agricultural program that supports prices at production costs, subsidizes farm exports to regain and retain market shares, maintains adequate stocks to stabilize markets, and implements mandatory production controls to balance supply and use. Public Law 100–71, the Supplemental Appropriations Act of 1987, directed the Secretary of Agriculture to investigate three aspects of this program (see Appendix A). These include producer sentiment regarding mandatory production controls and cost–linked prices; quantities needed for domestic consumption, exports, and stocks; and changes needed in rules and regulations. Results show that producers historically have indicated varying degrees of support for mandatory controls. Market needs and effects depend on numerous program implementation details. Such a program would require changes in a wide range of statutes and U.S. Department of Agriculture (USDA) rules and regulations.

Producer Sentiment

Several large-scale surveys of producers' attitudes about farm programs in general and mandatory controls in particular have been conducted since 1980. Individual commodity referendums have been more frequent, many conducted at regular intervals since the late 1930's and 1940's. These surveys and referendums suggest widely varying but generally less than enthusiastic producer support for mandatory production controls over time, across commodities, and between regions. Support for controls is stronger when commodity prices are depressed because farmers generally perceive that production controls would increase producer incomes. Support for mandatory production controls erodes when commodity prices strengthen and the financial positions of farmers improve. However, even in periods of severely depressed commodity prices, the majority of farmers have not supported mandatory controls.

In surveys of U.S. farmers conducted in the 1980's, feed grain/soybean producers showed less support for mandatory production controls than did wheat or cotton/rice producers. Livestock, poultry, and dairy producers showed the least support for mandatory production controls, in part because their production costs would be higher and incomes lower if feed prices rose. Tobacco and peanut producers have favored continuing tight production controls through marketing quotas, largely because quota benefits have been capitalized into higher land values. Thus, eliminating quotas would likely reduce the value of tobacco and peanut land.

The Great Plains region showed stronger support for mandatory controls than did the West or the Corn Belt regions. About half of producers in the Corn Belt region opposed mandatory production controls in most recent surveys. The sentiment against mandatory controls was strongest in Washington, Oregon, and Arizona.

Cost-based Support Prices

The cost of producing any particular crop varies greatly among farms and across regions due to differences in size, management skills, and yields. At issue is which cost of production measure to use to set support prices to be implemented through nonrecourse loans. Possibilities include using a single national average cost of production measure or using multiple regional or operator size class averages. Variable cash costs, total cash expenses, or total economic

1

costs could be used. Other issues resulting from cost-based support prices include market distortions, accounting for secondary products, spiraling costs and prices, and effects on farm income.

USDA's Economic Research Service (ERS) annually reports national average costs and regional costs of production for major crops and livestock commodities. This study sets support prices for each commodity using a single national average total economic cost of production, including land, based on the ERS cost of production methodology. Prices set at this level would result in returns well above total cash expenses (variable cash plus fixed cash expenses). These levels of cost-based support prices would raise market prices for most program commodities above current levels. However, operator income would initially fall because current target prices, which would be eliminated, exceed total economic production costs for many program commodities.

A Fair Share of World Export Markets

An export program designed to regain and retain a fair share for U.S. exports in world markets while also maintaining domestic prices at total economic cost of production levels would require a two-price system. Virtually all U.S. agricultural exports would have to be subsidized in order to compete in lower priced international markets. Such a program would represent a fundamental change in how the United States trades in international markets and is distinctly different from our current position in General Agreement on Tariffs and Trade (GATT) negotiations arguing for a more competitive international trade environment. The U.S. Government would have to take a prominent role in subsidized agricultural export markets. Further, restrictions on imports of lower priced raw and processed agricultural commodities would be required to limit foreign access to U.S. markets and to prevent the re-importation of subsidized exports.

U.S. competitors would not likely accept any U.S. definition of a fair share of world trade. Therefore, they would probably implement retaliatory trade practices with the result being a highly confrontational trade environment replete with conflict between trading competitors, again in stark contrast to the U.S. goals in GATT negotiations for a more competitive trade environment.

For illustration purposes, targeted fair share export levels in this study were based on simple average export shares over the last 10 years. If an across-the-board export subsidy program were implemented to attain these shares, export subsidies could average $6 to $7 billion annually over the next 5 years. Subsidies initially could be about $5 billion, but would grow to about $8 billion by 1992 as a 4-year transition to fair share levels was completed.

These subsidy cost estimates assumed that current cargo preference exemptions for exports under such programs as the Export Enhancement Program (EEP) would also extend to subsidized exports under the alternative program. It was also assumed that domestic prices would be supported at full economic cost of production levels and that import controls would be used to protect higher domestic prices. Finally, it was assumed that competitor resistance to U.S. adoption of such an export program would be limited. Consequently, export subsidy costs could be sharply higher than those indicated here if domestic price goals were raised, if targeted export shares were increased, if cargo preference provisions were to apply to these exports, if a strong retaliatory reaction by export competitors were to result, or if world demand were to stagnate and drive down world commodity prices.

Adequate Stocks

Stocks for many program commodities exceed levels needed to adequately buffer against supply and demand variability. A multi-year transition period would be needed to reduce these stocks. Adequate levels of total carryover stocks thereafter would serve to lessen the effects of yield variability on domestic prices and demand.

Mandatory Controls

Using mandatory production controls to balance supply and use would result in a highly managed agricultural system with an increased Government role in the operation of the sector. Making a mandatory controls program work ultimately depends on reducing production and limiting supplies enough to push market prices up to targeted levels. Little distinction would be made between efficient and inefficient producers, forcing proportionate adjustments in production for all operators in a sector characterized by widely different cost structures. Mandatory controls would constrain the ability of producers to respond to changing economic signals, leading, in the long run, to misallocated resources and reduced efficiency in the sector. In this study, with price supports based on full economic costs of production, mandatory controls would be needed for most program commodities to prevent supplies from exceeding anticipated domestic use, target exports, and stocks requirements. Controls would be most restrictive in the initial years for those commodities where stocks currently exceed targeted levels. Less restrictive controls would be needed in the longer run to prevent a rebuilding of stocks.

Domestic Commodity Markets

The effects of the alternative program would be strong enough and far-reaching enough to eventually reshape the entire agricultural sector. Effects on program commodities would be direct and immediate; effects on nonprogram commodities would be indirect but no less real. Support prices based on full economic costs of production would raise domestic farm prices for most program commodities and reduce domestic use. Exceptions to this are tobacco and peanuts where lower cost-based support prices would lead to increased quantities demanded domestically. Also, although soybean prices would be higher, domestic use would rise because increased crush would be needed to meet larger fair share export levels for soybean meal and soybean oil. The livestock sector would feel the effects indirectly. Livestock production costs would rise because the alternative program would raise feed prices. In response, livestock production would drop, prices would rise, and per capita meat consumption would drop.

Aggregate Effects

Net farm income initially would be reduced, reflecting the fact that target prices used to calculate deficiency payments under current legislation are well above total economic production costs used to support prices under the alternative program. Additionally, larger reductions in production would be needed initially with the alternative program than with current legislation. In the longer run, however, net farm income would be higher as cost-linked prices would rise above target prices under current legislation.

Similarly, farm program costs initially would be reduced primarily because eliminating deficiency payments and non-Conservation Reserve Program (CRP) land diversion payments would at first offset the higher cost of export

subsidies required to achieve a fair share of world trade. Longer run growth in export subsidy costs, however, would lead to higher farm program costs. Consumer food costs would rise primarily because of higher meat prices as higher feed costs force livestock producers to cut production. Changes in economywide employment requirements would be very small in both the short run and long run. Initially, employment requirements would be somewhat lower, reflecting reduced crop and livestock production and related employment reductions in input and marketing industries. In the longer run, employment gains related to increased exports to meet targeted fair shares would offset employment losses related to reduced livestock production, resulting in a small net increase in employment requirements.

The aggregate effects of the program are highly dependent on domestic price goals and the international trade environment. Most mandatory control programs are usually associated with much higher domestic price goals. If higher parity-linked domestic prices were implemented, for example, farm incomes, food prices, and Government costs (especially export subsidies) would be much higher and mandatory production controls would have to be more restrictive than indicated in this study. Export subsidies could also be higher if targeted export shares were increased, if cargo preference provisions were to apply to these exports, or if a strong retaliatory response by our export competitors were to result.

Program Issues

Implementing an alternative agricultural program with cost-based support prices, mandatory production controls, a fair share of export markets, and adequate stocks would require significant changes in a wide range of USDA rules and regulations. Some issues could be resolved within the framework of, or patterned after, the Food Security Act of 1985. But most issues would require new legislation to supplement or replace the 1985 Act or to extend the Secretary of Agriculture's discretionary authority. Historical experience with acreage allotments and marketing quotas could also be drawn on. Ultimately, even larger scale and more complicated Government intervention in the marketplace for agricultural commodities than exists under current programs would be needed.

I. This section addresses the first paragraph of the mandate
which directs the Secretary of Agriculture to investigate

*...whether producers of basic agricultural commodities, including
soybeans, favor the imposition of mandatory limits on the production
of basic agricultural commodities including soybeans...*

FARMERS' VIEWS ON MANDATORY PRODUCTION CONTROLS

Several large-scale surveys of producers' attitudes about farm programs in general and mandatory controls in particular have been conducted since 1980. Individual commodity referendums have been more frequent, many conducted at regular intervals since the late 1930's and 1940's. These surveys and referendums suggest widely varying but generally less than enthusiastic producer support for mandatory production controls over time, across commodities, and between regions. Support for controls is stronger when commodity prices are depressed because farmers generally perceive that production controls would increase producer incomes. Support for mandatory production controls erodes when commodity prices strengthen and the financial positions of farmers improve. However, even in periods of severely depressed commodity prices, the majority of farmers have not supported mandatory controls.

In surveys of U.S. farmers conducted in the 1980's, feed grain/soybean producers showed less support for mandatory production controls than did wheat or cotton/rice producers. Livestock, poultry, and dairy producers showed the least support for mandatory production controls, in part because their production costs would be higher and incomes lower if feed prices rose. Tobacco and peanut producers have favored continuing tight production controls through marketing quotas, largely because quota benefits have been capitalized into higher land values. Thus, eliminating quotas would likely reduce the value of tobacco and peanut land.

The Great Plains region showed stronger support for mandatory controls than did the West or the Corn Belt regions. About half of producers in the Corn Belt region opposed mandatory production controls in most recent surveys. The sentiment against mandatory controls was strongest in Washington, Oregon, and Arizona.

The 1987 Iowa Farm Finance Survey

An April 1987 survey of 5,000 Iowa farm operators showed that 58 percent favored continuing present voluntary programs which provide Government price and income supports in return for acreage reduction (table 1). The survey, conducted by the Cooperative Extension Service and Agricultural Experiment Station of Iowa State University and the Iowa Department of Agriculture and Land Stewardship, asked farmers to indicate their preference for four farm policy options, including a mandatory production controls option (Option C). About 250 usable responses to this question were received.

The majority (51 percent) of Iowa farmers opposed mandatory production controls. Only 23 percent supported a policy of implementing mandatory production controls and higher price supports if the programs were approved in a farmer referendum.

Characteristics of the farmers surveyed suggest that their financial positions affected their policy preferences. Fifty-seven percent of financially strong farmers opposed mandatory production controls; only 18 percent of these farmers favored controls. By contrast, 36 percent of farmers in severe financial stress supported mandatory controls, although 46 percent of this group opposed such controls.

Table 1--1987 Iowa Farm Finance Survey: Farmers favor continuing voluntary
        programs

Farm policy option	Responses indicating--			
	Agree	Not sure	Disagree	Total

Percent

	Agree	Not sure	Disagree	Total
Option A: The United States should continue present voluntary programs which provide Government price and income supports in return for acreage reduction	58	27	15	100
Option B: The United States should move to a market-oriented policy by decoupling and phasing down income supports over a period of years	40	37	23	100
Option C: The United States should implement higher price supports and mandatory production controls, if approved in a farmer referendum	23	26	51	100
Option D: The United States should target more farm program spending toward the one-third of farmers who are financially stressed	24	29	47	100

    Source: Mark A. Edelman and Douglas R. Olsen. *1987 Iowa Farm Finance
Survey.* Assist No. 15. Cooperative Extension Service, Iowa State University,
May 1987.

The 1987 Iowa Farm and Rural Life Poll

Nearly half of farmers responding to the Iowa Farm and Rural Life Poll in
spring 1987 opposed mandatory production control programs, if such a program
were approved by a producer referendum (table 2). Iowa State University mailed
questionnaires to a statewide random sample of 3,527 farm families in March
1987. Nearly 55 percent responded.

This survey proposed six long-term agricultural policy options, again including
a mandatory production control alternative (Policy D). Thirty-nine percent of
respondents supported mandatory controls, with 16 percent strongly supportive.
Nearly 60 percent of respondents favored continuing current voluntary price
support and acreage reduction programs with only minor revisions.

The 1986 USDA Wheat Poll

Slightly over half of responding wheat farmers favored mandatory limits on
wheat production in a USDA poll of producers in 47 States in June 1986. This

Table 2--1987 Iowa Farm and Rural Life Poll: Majority oppose mandatory controls

Long-term policy	Strongly agree	Somewhat agree	Uncertain	Somewhat disagree	Strongly disagree
			Percent		
Policy A: Make only minor revisions in the price support and acreage reduction programs in the 1985 Farm Act	18	41	24	11	6
Policy B: "Decouple" income support from current production. Farmers would receive Government payments based on past production, but they would not have to produce a crop to receive payments	21	30	26	12	11
Policy C: Move toward a more market-oriented policy in the next 5 years by reducing target prices and loan rates on corn and soybeans	15	27	21	18	19
Policy D: If approved in a producer referendum, the Government should implement price supports and production control programs, with all farmers required to participate	16	23	14	17	30
Policy E: By 1995, eliminate all price supports, production reduction programs, and Government storage	16	16	29	20	19
Policy F: Establish a two-tiered price system, in which only the proportion of farm production used in domestic markets would be supported by target prices and deficiency payments	7	22	39	18	14

survey was in response to a provision in the Food Security Act of 1985. However, the wheat poll results were regarded by the Secretary of Agriculture as inconclusive because only 20 percent of those polled returned valid ballots.

Of the six questions included in the survey, the one relating to mandatory production controls was worded: "Do you favor mandatory limits on production that would result in prices of at least 125 percent of the national cost of production?"

The wheat poll results varied considerably among States (table 3). Of the major wheat producing States, Washington showed the least support for mandatory production controls (26 percent), with similar low approval rates in the rest of the Pacific Northwest and in some Western States. Less than half of respondents in the Corn Belt States (except for Missouri), supported mandatory controls. In contrast, 73 percent of respondents in both Minnesota and Texas strongly supported mandatory controls. In other major wheat producing States (Kansas, North Dakota, Oklahoma, Montana, South Dakota, Colorado, and Nebraska), support for mandatory controls ranged from 53 percent to 69 percent of respondents.

Of producers who had at least one crop of wheat during 1981-85 on a wheat acreage base of at least 40 acres, 57 percent supported mandatory controls, compared with the 54-percent support rate among all responding wheat farmers.

About 56 percent of wheat producers who own and farm their own land favored mandatory controls. However, both farm tenants and landowners who rent their land showed relatively less support for mandatory controls: 44 percent for tenants, 42 percent for crop share owners, and 35 percent for cash rent owners.

Support for mandatory controls by classes of wheat paralleled regional results. Over 60 percent of producers of hard red spring, durum, and hard red winter wheat (crops grown primarily in the Great Plains) supported mandatory controls (table 4). In contrast, the majority of soft red winter and white wheat producers (primarily in the Corn Belt and the Pacific Northwest, respectively) opposed mandatory controls.

Farmers' views on mandatory production controls also varied depending on type of farm operation (table 4). Wheat producers who classified themselves as cotton/rice operators showed the strongest support for mandatory production controls, with 62 percent in favor. Wheat producers classified as wheat operators closely followed this preference with 61 percent in support. In contrast, wheat producers classified as feed grain/soybean, livestock/dairy, or other operators indicated relatively lower support for mandatory controls.

The 1984 Agricultural Policy Survey

Producers in a 1984 survey disagreed over whether acreage reduction programs should be voluntary or mandatory (table 5). This survey questioned producers in 17 States, representing all regions of the country. A total of 8,085 farmers (about 30 percent of those contacted) responded. Producers in 12 of the 17 States preferred the present voluntary programs to the mandatory acreage reduction program. Mandatory programs were more popular in the wheat-producing States of Nebraska, Kansas, Oklahoma, and Texas. More farmers in these States selected the policy option requiring that all producers participate in a set-aside program if approved in a referendum. However, fewer than 30 percent of respondents in Nebraska, Kansas, and Oklahoma expressed this opinion.

9

Table 3—1986 USDA Wheat Poll: Low response rate renders poll inconclusive

State 1/	Ballots mailed	Ballots tallied		Ballots marked—2/	
				Yes	No
	——— Number ———			——— Percent ———	
Alabama	26,981	1,882	7.0	66.1	33.9
Arizona	2,076	438	21.1	29.5	70.6
Arkansas	31,915	4,142	13.0	53.2	46.8
California	16,421	2,723	16.6	41.3	58.7
Colorado	23,608	6,363	27.0	53.4	46.6
Connecticut	19	5	26.3	80.0	20.0
Delaware	1,462	167	11.4	35.9	64.1
Florida	4,829	422	8.7	53.6	46.5
Georgia	45,899	3,701	8.1	69.5	30.5
Idaho	34,319	6,065	17.7	40.8	59.2
Illinois	96,073	20,326	21.2	32.9	67.1
Indiana	72,536	14,691	20.3	42.0	58.0
Iowa	13,392	2,975	22.2	38.3	61.7
Kansas	158,809	47,052	29.6	59.5	40.6
Kentucky	25,625	4,952	19.3	34.8	65.2
Louisiana	11,236	1,083	9.6	50.3	49.7
Maine	72	12	16.7	41.7	58.3
Maryland	5,703	1,082	19.0	28.1	71.9
Massachusetts	20	1	5.0	0	100.0
Michigan	44,974	9,686	21.5	25.8	74.2
Minnesota	70,035	15,669	22.4	73.4	26.6
Mississippi	27,444	3,056	11.1	38.9	61.1
Missouri	77,249	14,269	18.5	54.3	45.7
Montana	31,314	10,124	32.3	61.8	38.2
Nebraska	63,498	18,423	29.0	69.0	31.0
Nevada	593	133	22.4	40.6	59.4
New Jersey	916	212	23.1	41.0	59.0
New Mexico	4,048	1,073	26.5	63.3	36.7
New York	8,685	1,676	19.3	42.4	57.6
North Carolina	70,833	5,796	8.2	65.8	34.2
North Dakota	87,541	25,671	29.3	66.4	35.6
Ohio	78,203	16,930	21.7	31.4	68.7
Oklahoma	69,324	16,832	24.3	61.9	38.1
Oregon	14,527	3,265	22.5	28.3	71.7
Pennsylvania	18,209	3,123	17.2	26.7	73.3
South Carolina	32,886	2,315	7.0	68.8	31.2
South Dakota	42,619	11,359	26.7	65.3	34.7
Tennessee	31,205	3,567	11.4	34.7	65.3
Texas	141,251	21,699	15.4	73.2	26.8
Utah	3,676	857	23.3	28.0	72.0
Vermont	49	14	28.6	21.4	78.6
Virginia	29,802	3,490	11.7	48.7	51.3
Washington	24,628	7,868	32.0	26.3	73.7
West Virginia	868	203	23.4	33.5	66.5
Wisconsin	17,859	3,292	18.4	47.1	53.0
Wyoming	2,283	724	31.7	54.1	45.9
United States	1,565,517	319,408	20.4	53.7	46.3

1/ No ballots sent to Hawaii, New Hampshire, and Rhode Island. No valid response received from Alaska.

2/ In response to: "Do you favor mandatory limits on production that would result in prices of at least 125 percent of the national cost of production?"

Source: USDA News Release No. 1006-86. August 15, 1986.

10

Table 4--1986 USDA Wheat Poll: Results vary by class of wheat and type
         of operation

Item	Respondents with a base exceeding 40 acres	Respondents favoring mandatory controls
	Number	*Percent*
Class of wheat:		
Hard red winter	109,762	61.7
Soft red winter	39,470	44.9
White wheat	15,946	32.2
Hard red spring	37,235	66.6
Durum wheat	7,374	65.4
Type of operation:		
Wheat	108,277	60.8
Feed grain/soybean	62,173	53.9
Cotton/rice	5,397	61.7
Livestock/dairy	15,688	49.5
Other	14,582	50.7

Few farmers favored re-establishing the type of acreage allotments and marketing quotas--another form of mandatory controls--used in the 1950's and early 1960's. Alabama and Florida farmers showed the highest preference for this approach, but even in those States more farmers preferred voluntary programs.

Although some farmers wanted to eliminate all set-aside, price-support, and Government storage programs, this view was not favored in any State by more than 36 percent of respondents. Thus, a majority of producers probably would not vote to eliminate current programs.

Farmers' responses in this survey differed somewhat with sales volume, but these differences varied by State. Producers with more than $200,000 in annual cash receipts preferred voluntary programs. Medium-size operators with annual sales of $40,000 to $200,000 favored mandatory acreage reduction programs more frequently than did operators in other sales classes. More smaller scale producers with less than $40,000 in annual sales preferred eliminating set-aside, price-support, and Government storage programs.

Grain farmers (especially those in the Great Plains) were more likely to favor mandatory programs. A larger proportion of livestock and dairy farmers favored eliminating all price-support programs which typically raise feed prices and thus livestock production costs.

Based on these producer opinions in 1984, a mandatory acreage control program referendum likely would have failed if a simple majority were required for passage. The producers who wanted to completely eliminate set-aside, price-support, and Government storage programs were a distinct minority. However, if these producers joined with those who supported voluntary programs, they would have effectively voted against mandatory acreage reduction programs.

Table 5--1984 Agricultural Policy Survey: Most producers prefer voluntary
        programs

Region and State	Keep voluntary programs	Require all producers to participate in set-aside programs	Re-establish acreage allotments and marketing quotas	Eliminate set-asides, price supports, and Government storage programs	Undecided	Other	No response
			Percentage of respondents				
North Central:							
Illinois	33	23	8	21	6	7	2
Indiana	31	22	8	26	9	3	2
Kansas	22	26	11	20	9	9 1/	4
Michigan	28	16	8	32	8	4	4
Minnesota	32	19	12	24	5	5	2
Nebraska	25	28	9	22	7	6	3
Ohio	33	17	10	29	6	4	2
S. Dakota	26	14	12	28	8	9	3
Wisconsin	21	16	10	36	9	7	2
West:							
Idaho	25	13	9	34	8	7	4
Washington	25	16	5	36	7	5	5
South:							
Alabama	28	14	15	21	11	2	9
Florida	27	14	17	28	9	2	3
Oklahoma	26	29	0	17	0	23 2/	5 3/
S. Carolina	26	26	10	18	6	10	4
Texas	15	45	15	8	5	2	10
East:							
Maryland	26	14	10	33	8	4	5

1/ Six percent preferred bushel quotas.

2/ Twelve percent preferred eliminating all acreage reduction and price
support programs and retaining deficiency payments only for medium and small
farms. Eleven percent preferred eliminating acreage controls and establishing
a two-price plan with a higher price for domestic sales and a lower world price
for export sales.

3/ Combined percentage of those who did not respond and those who suggested
other programs not included in footnote 2/.

Source: H.D. Guither, B.F. Jones, M.A. Martin, and R.G.F. Spitze. *U.S.
Farmers' Views on Agricultural and Food Policy.* North Central Regional Extension
Publication 227 and North Central Regional Research Publication 300, December
1984.

The 1980 Agricultural Policy Survey

Most farmers opposed mandatory controls in a 1980 survey conducted in Illinois, Indiana, Michigan, Minnesota, Nebraska, North Dakota, Ohio, Oregon, Washington, and Texas. The survey's question on farmers' policy preferences asked: "What do you think Congress should do about future farm legislation in 1981?" Farmers indicated their preference from among four policy options (table 6).

Only a small fraction of respondents (ranging from 10 percent in Ohio to 16 percent in North Dakota and Texas) favored developing new farm legislation, which would implicitly include a mandatory production controls legislative option. Strong agricultural exports and high commodity prices in 1980 probably were responsible for the 1980 survey's weaker support for mandatory production controls compared with the 1984 survey. Although the most frequent response in each State was to keep the present law with minor changes, it was a majority response only in North Dakota and Minnesota.

Referendum Voting Records

The Agricultural Adjustment Act of 1938 originally authorized the use of allotments and a combination of marketing quotas and acreage allotments to control the production of specified commodities. Before being implemented, quotas had to be approved by two-thirds of producers in a referendum. When approved, marketing quotas were to be proclaimed and implemented except in the event of a national emergency or when the Secretary determined a shortfall made crop production insufficient to meet demand. Subsequent legislation suspended or repealed the authority for implementing such allotments and quotas for most commodities. Accordingly, allotments and quotas are currently in effect only for certain kinds of tobacco and peanuts.

Table 6--1980 Agricultural Policy Survey: Most opposed mandatory controls

State	What should Congress do in 1981?				
	Keep present (1980) law with minor changes	Eliminate all price and income programs	Develop new legislation	No opinion	No answer
	Percentage in favor				
Illinois	37	31	14	10	8
Indiana	40	26	12	13	9
Michigan	47	23	11	15	4
Minnesota	52	21	14	5	8
Nebraska	41	14	14	15	16
N. Dakota	53	15	16	7	9
Ohio	43	26	10	12	9
Oregon	35	31	11	12	11
Washington	36	19	12	15	18
Texas	46	21	16	10	7

Source: Harold D. Guither. *How Farmers View Agricultural and Food Policy Issues.* Illinois Agricultural Economics Staff Paper No. 81 E-156, March 1981.

Producer referendums have resulted in approval and implementation of marketing quotas for upland cotton (implemented in 1938-42, 1950, and 1954-70), rice (1955-73), wheat, (1941-42 and 1954-63), peanuts (1941-42 and 1949-87), and tobacco (flue-cured, burley, fire-cured, dark air-cured, and Virginia sun-cured in 1938-87 except for the 1939 crop). Here is a closer look at the results of producer referendums for specific crops.

Cotton

Upland cotton producers overwhelmingly approved marketing quotas in referendums on production controls in most years from 1938 through 1970. Support ranged from 84 percent in December 1938 to nearly 97 percent in December 1961. By late 1970, however, stocks were better controlled and farm prices of cotton began an upturn. As a result of these developments and the shift in cotton production to the West, the Agricultural Act of 1970 established a voluntary program for cotton and suspended marketing quotas for 3 years.

The Agriculture and Consumer Protection Act of 1973 extended the voluntary programs. Program payments were limited to each farmer's acreage allotment, but no penalties were imposed if additional acres were planted. The voluntary programs were in response to a strong international demand for U.S. crop commodities due to a worldwide crop shortage, devaluation of the dollar, and other factors. The Food and Agriculture Act of 1977 replaced acreage allotments and based program payments on current rather than historical cotton plantings. As a result, marketing quotas have been discontinued for upland cotton since 1971.

Rice

Rice producers continuously and overwhelmingly approved marketing quotas from 1955 to 1973. Support ranged from 85 percent in January 1956 to 96 percent in January 1968. The only time rice marketing quotas were disapproved was in the December 1938 referendum when only 48 percent of rice producers favored marketing quotas. An upsurge in rice prices due to the worldwide crop shortage and other factors triggered a suspension of quotas for both the 1974 and 1975 crops. Then the Rice Production Act of 1975 shifted the program emphasis on supply control from marketing quotas and allotments to more market-oriented supply controls similar to programs for other grains. The 1975 Act limited program payments to national acreage allotments, but no penalties were imposed if additional acres were planted.

Wheat

Wheat marketing quotas were in effect from 1954 to 1963 because surplus stocks had built to extremely large levels. Support for quotas in referendums during this period ranged from 68 percent in August 1962 to 87 percent in July 1960. Wheat stocks grew despite marketing quotas, reaching 1.5 billion bushels at the end of 1960/61, nearly 120 percent of annual use. As a result, a voluntary paid diversion program used in conjunction with quotas was implemented under which wheat producers voluntarily diverted additional acres in exchange for program payments. Wheat growers disapproved quotas in a May 1963 referendum, and quotas have not been used since the 1963 crop year.

Corn

Acreage allotments instead of marketing quotas were put into effect in some years from 1950 to 1958. In November 1958, however, corn growers voted to end corn allotments and replace them with base acreages. Only 29 percent of corn

14

producers favored continuing corn acreage allotments. No further corn referendums have been held since then.

Tobacco

Tobacco growers have repeatedly shown strong support for marketing quotas for major kinds of tobacco since 1938, with approval rates mostly about 90 percent. Thus, marketing quotas have been in effect since 1938 (except the 1939 crop) for each crop of flue-cured, burley, dark air-cured, and Virginia sun-cured tobacco. This producer support reflects a number of factors. Tobacco producers have limited viable alternatives to growing tobacco. Support prices for tobacco are generally higher than costs of production (excluding management). And, landowners favor marketing quotas because the value of quotas leads to higher land values.

Peanuts

Except for the 1943-48 crops, peanut growers have approved marketing quotas in referendums since 1941. The support for quotas ranged from about 71 percent in December 1950 to over 97 percent in November 1965, with support averaging over 90 percent in recent years. Peanut growers continue to favor marketing quotas because the quota support rate has been consistently higher than the average cost of production for peanuts, and landowners can continue to capture benefits which have been capitalized into land values.

II. This section addresses the second paragraph of the mandate which directs the Secretary of Agriculture to investigate

...the quantity of each basic agricultural commodity, including soybeans, needed by crop year to meet domestic consumption, to maintain an adequate reserve, and to regain and retain our fair share of world markets...

To more completely describe the economic environment in which these market needs would occur, provisions set forth in the first and third paragraphs of the mandate were used in this section as well. These include implementing

...mandatory limits on the production of basic agricultural commodities including soybeans, and nonrecourse loans on basic agricultural commodities, including soybeans, that reflect a fair return to the farm producer at not less than the cost of production...

Fundamental questions regarding how basing support prices on cost of production, regaining and retaining a fair share of world trade, maintaining adequate stocks, and implementing mandatory controls would affect market needs are addressed in the first four portions of this section. These are followed by discussions of the effects on domestic commodity markets and on the agricultural sector as a whole. Commodity-specific projections for basic agricultural commodities, including soybeans, under the alternative program from 1988/89 to 1992/93 are shown in Appendix B.

The cost of producing any particular crop varies greatly among farms and across regions due to differences in size, management skills, and yields. At issue is which cost of production measure to use to set support prices to be implemented through nonrecourse loans. Possibilities include using a single national average cost of production measure or using multiple regional or operator size class averages. Variable cash costs, total cash expenses, or total economic costs could be used. Other issues resulting from cost-based support prices include market distortions, accounting for secondary products, spiraling costs and prices, and effects on farm income.

USDA's Economic Research Service (ERS) annually reports national average costs and regional costs of production for major crops and livestock commodities. This study sets support prices for each commodity using a single national average total economic cost of production, including land, based on the ERS cost of production methodology. Prices set at this level would result in returns well above total cash expenses (variable cash plus fixed cash expenses). These levels of cost-based support prices would raise market prices for most program commodities above current levels. However, operator income would initially fall because current target prices, which would be eliminated, exceed total economic production costs for many program commodities.

Which Measure to Use?

Support prices used in a nonrecourse loan program could be based on any one of several measures of per unit cost of production. Possibilities include using a single national average cost measure or using multiple regional or operator size class averages. Variable cash costs, total cash expenses, or total economic costs could be used.

If support prices were based on a national average production cost measure, low-cost operators would receive a windfall and high-cost operators would receive support below their production costs. If support prices were based on regional average costs, the more efficient operators within a region would receive a windfall while less efficient operators would receive support below their production costs. An even more sophisticated system of regional cost measures adjusted to reflect differences across operator size classes is also possible. But these progressively more complex alternatives all involve more involved administration requirements and move operators further from market forces in making production decisions.

Support prices could be based on variable cash costs, total cash expenses, or total economic costs. Variable cash costs account for a portion of total cash expenses, with fixed cash costs accounting for the remainder. Total cash expenses and total economic costs differ in how they treat the interest on capital investment and the costs for land and labor. Cash expenses include all interest payments on real estate and nonland debt. Total economic costs do not include cash interest payments associated with real estate and nonland debt because full ownership of land and other capital assets is assumed. Cash expenses include only costs for hired labor, while economic costs also include land rentals, returns on capital, and charges for both paid and unpaid labor. Table 7 illustrates these different cost of production measurements by showing U.S. average costs of producing corn in 1986. Variable cash costs for corn

17

Table 7--U.S. corn production costs, 1986

Item	Corn production costs	
	Dollars/planted acre	Dollars/bushel 1/
Total cash expenses	189.57	1.61
Variable cash expenses	118.73	1.01
Seed	16.82	
Fertilizer	45.51	
Chemicals	19.21	
Custom operations	6.70	
Energy	9.52	
Repairs	11.17	
Drying	5.10	
Other variables	4.70	
Fixed cash expenses	70.84	.60
General farm overhead	14.53	
Taxes and insurance	17.66	
Interest paid	38.65	
Total economic costs	239.82	2.04
Economic (full ownership) costs:		
Total cash expenses less cash		
interest paid	150.92	1.28
Capital replacement	33.71	.29
Allocated returns to owned inputs:		
Return to operating capital	2.87	.02
Return to other nonland capital	6.50	.06
Net land rent	32.19	.27
Unpaid labor	13.63	.12
Cash receipts, (yield multiplied		
by harvest price)	165.17 2/	
Yield (bu/planted acre)	117.69	
Harvesttime price ($/bu)	1.40	
Residual return to management and		
risk, (cash receipts minus total		
economic costs)	−74.65	
Cash receipts plus Government pay-		
ments minus total economic costs 3/	41.90	

1/ Cost per planted acre divided by yield per planted acre of 117.69 bushels in 1986.

2/ Government payments are not included.

3/ Government payments estimated at $116.55 per acre by multiplying the program payment yield (105 bushels per acre) times the deficiency payment ($1.11 per bushel).

Source: *Economic Indicators of the Farm Sector: Costs of Production, 1986.* ECIFS 6-1. U.S. Dept Agri., Econ. Res. Serv. Nov. 1987.

were $1.01 per bushel, total cash expenses for corn were $1.61, and total economic costs for corn were $2.04.

Variable Cash Costs

Variable cash costs per unit include such items as seed, fertilizer, repairs, hired labor, and custom operations. Variable costs reflect the minimum price needed, with a given yield, to make crop production worthwhile in the short run. The national average variable cost of producing corn in 1986 was $1.01 a bushel (table 8). This figure represents the economic shutdown point since commodity prices below this level would not cover the variable costs of producing the crop.

Total Cash Expenses

Total cash expenses add fixed costs to variable costs. Fixed costs include general farm overhead, taxes and insurance, and interest paid. U.S. average total cash expenses were $1.61 a bushel for corn in 1986. If the market price for corn dropped below $1.61, cash receipts would not have covered total cash expenses. Cash expenses do not include capital replacement, land rentals, or unpaid labor.

Total Economic Costs

Total economic costs assume full ownership of land and other capital assets. Therefore, cash interest payments associated with real estate and nonland debt are not included. Total economic costs for corn including land were $2.04 a bushel in 1986. This figure covers all fixed and variable production costs for an operator with full ownership of the land and other capital assets, as well as a competitive return on those owned land and nonland assets. It therefore represents the longrun breakeven price required with full ownership to continue producing a crop. Total economic costs do not include any return to management and risk.

Land costs are defined as the cash and share rental cost (share payments are a specified portion of the crop produced). Agriculture's economic health influences rental rates for land. The market price for the crop affects the value of the share rental component (that is, the value of the portion of a tenant farmer's crop that is paid to the landowner as rent).

Excluding interest expenses from total economic costs permits a reliable comparison of production costs for various commodities independent of costs associated with different levels of debt. The cost of production for two operators with equal management skills and who use similar technology on similar land should be about equal. However, if these two farmers have widely different debt levels, their cash expenses (which include cash interest) would differ. Their total economic costs of production would be similar, however, because cash interest payments are excluded. Implicitly, therefore, the total economic costs assume full ownership of land and other assets because equity levels and tenure of producers are not considered.

Economic costs also include an imputed long-term average rate of return on production assets and the opportunity cost of annual operating capital based on the 6-month U.S. Treasury bill rate. These opportunity costs reflect how much farmers could have earned on an individual basis if they had put annual operating capital into Treasury bills rather than back into their farms.

Table 8--U.S. production costs, selected crops, 1986 and 1980-86 range

Item	: : : :	1986	: : : :	Range 1980-86
		Dollars/bu		
Corn:				
Variable cash expenses		1.01		1.01-1.54
Fixed cash expenses		.60		.60- .91
Economic cost excluding land		1.76		1.76-2.69
Economic cost including land		2.04		2.04-3.28
Wheat:				
Variable cash expenses		1.55		1.43-1.62
Fixed cash expenses		1.08		.95-1.17
Economic cost excluding land		3.27		2.91-3.31
Economic cost including land		3.81		3.81-4.22
Soybeans:				
Variable cash expenses		1.58		1.58-2.17
Fixed cash expenses		1.58		1.58-2.05
Economic cost excluding land		3.52		3.52-4.74
Economic cost including land		4.87		4.87-7.15
		Dollars/lb		
Cotton:				
Variable cash expenses		.42		.37- .46
Fixed cash expenses		.14		.11- .18
Economic cost excluding land		.64		.57- .80
Economic cost including land		.74		.67- .92
		Dollars/cwt		
Rice:				
Variable cash expenses		4.34		4.34-5.20
Fixed cash expenses		1.28		1.28-2.29
Economic cost excluding land		6.65		6.65-8.31
Economic cost including land		7.21		7.21-9.93

The imputed value of unpaid labor supplied by the operator and others is included in total economic costs. The hourly value of unpaid labor is, at a minimum, equal to the hired farm labor wage rate. Wage rates and the allocation of total labor hours to paid and unpaid categories is based on USDA's annual survey of farm costs, returns, and production practices.

For this analysis, support prices for the alternative program were based on total economic costs including charges for land and assuming normal crop yields. Prices set at this level would provide no return to management and risk but would result in returns well above out-of-pocket expenses (variable cash plus fixed cash expenses).

Cost-based Support Price Issues

Regardless of which measure of production costs is used to support prices, operational issues and questions arise. These issues include how to deal with yearly and regional variations in production costs and with distortions in

market prices; how to account for the value of secondary products; how to limit effects of spiraling costs and prices; and what are the implications for income support.

   Production cost variations. How would a cost-based support program deal with variations in production costs from year to year, and with variations between regional production costs within a single year?

Production costs vary widely from year to year (tables 8 and 9). The effect of drought on crop yields and, thus, on per unit production costs is vividly illustrated by the increased costs in 1980 and 1983. A system of cost-based support prices requires using trends to project yields or using some other procedure (such as a 5-year moving average or per acre cost indexing) to dampen the effects that year-to-year changes in yields would have on cost of production estimates and derived support prices. Moreover, because yields are estimated on a per-planted-acre basis to account for all production costs from planting through harvest, crop acreages planted to the program crop but used for cover crop, forage, or silage must be deducted from the total planted for the crop.

The data in table 9 also indicate that total economic costs of producing major program crops have trended down in recent years. If this trend continues, production costs in 1988 will be near levels of a decade earlier. For most crops, falling land rents have contributed to the lower costs in recent years. For example, the rental value of U.S. corn land fell $35 an acre from 1984 to 1986, or about $0.30 a bushel using 1986 yields. This decline primarily reflects a drop in the harvesttime price of corn from $2.58 a bushel in 1984 to $1.40 in 1986 which significantly lowered the share rental value of U.S. corn land, that is, the value of the share of the crop paid to the landowner. Reduced costs for interest and energy-based inputs have also contributed to this decline. Growing conditions have generally been good in recent years, as well.

This study assumes economic costs of production will remain low by 1980-85 standards and increase only moderately from the relatively low costs in

Table 9--Total economic costs (including land) of producing major crops

Year	Corn	Wheat	Soybeans	Cotton	Rice
	------- Dollars/bu --------			Dollars/lb	Dollars/cwt
1978	1.99	3.42	5.27	0.71	7.57
1979	2.17	3.50	5.21	.65	8.67
1980	2.91	4.09	6.96	.92	9.93
1981	2.55	4.22	6.02	.69	9.65
1982	2.38	4.05	5.49	.71	9.30
1983	3.28	3.82	7.15	.82	9.74
1984	2.74	4.00	6.41	.72	9.30
1985	2.36	3.93	5.07	.67	8.64
1986 1/	2.04	3.81	4.87	.74	7.21
1987 2/	2.06	3.52	4.91	.61	7.75

1/ Preliminary.
2/ Estimated.

1986-87. Factors behind this assumption include expected trend increases in crop yields and no significant increases in the costs of production inputs, including land. If one or more of these underlying factors were not realized, economic costs of production could be higher than those used in this study.

Regional production costs vary widely. Support prices based on national average cost levels may be inadequate for many producers in higher cost regions. The variability in cotton production costs illustrates potential problems with using regional average costs (table 10). The Southern Plains (Texas and Oklahoma) has had, on average, the highest cotton production costs in recent years. At the same time, that region has had the lowest average farm prices. Most Southern Plains cotton is graded below the average U.S. quality. Thus, basing support prices strictly on regional costs of production would set prices for lower graded cotton at or above the higher grades. Other commodities would face similar pricing distortions such as rice (long grain versus short grain) and wheat (high protein versus low protein). Also, if regional cost-linked support prices differed by more than transportation costs, some regions would find their local demand met by distant regions, leading to local surpluses and inefficient marketing patterns.

Mandatory participation in Government farm programs (instead of voluntary participation) would raise the U.S. average cost of production because both high-cost and low-cost regions would participate equally. This equal participation, in turn, would reduce economic efficiency because some low-cost production resources would be removed from production before all higher cost resources were removed. The pressure on economic efficiency under a mandatory controls program could be minimized by tailoring programs on a regional basis to reduce production proportionately more in high-cost areas. But, regional programs could pose serious adjustment problems for high-cost regions that do not have good alternative uses for displaced resources. In this analysis, mandatory acreage reduction programs were applied equally across regions.

Market distortions. Cost-based support pricing raises questions about how to respond to market distortions when the average production costs of competing commodities bear no resemblance to how markets actually value those commodities in their use.

The marketplace relates commodity prices to the relative marginal values of the commodities in use and may not reflect their average costs of production. Thus, setting prices to cover average costs of production may result in market distortions.

Table 10--Total economic costs (including land) of producing cotton

Area	1984	1985	1986
		Dollars/lb	
United States	0.72	0.67	0.74
Delta	.62	.62	.66
Southeast	.65	.62	.86
Southern Plains	.77	.68	.82
Southwest	.79	.72	.71

This potential for market distortion is best illustrated by feed grains (table 11). Loan rates and target prices for the minor feed grains have been based primarily on how their feed value relates to the feed value of corn. Sorghum and barley, on average, cost more to produce per bushel than does corn, but their average farm prices are lower because livestock fed sorghum and barley do not gain or maintain weight as efficiently as they do when fed equal volumes of corn. Thus, the lower feed values dampen demand, pushing prices down (relative to corn prices) to levels that reflect those feed values. Basing support prices on production costs would raise sorghum and barley prices above corn prices, regardless of feed values and demand. Oat prices would rise relatively more than corn prices, also distorting the relation of prices to feed values. These relative price shifts would result in more-than-proportional reductions in livestock feed use for sorghum, oats, and barley with feed demand shifting to corn. As a result, mandatory controls on production of the minor feed grains would be more stringent than controls on corn production, leading to greater adjustment problems in areas specializing in production of one or more of the minor feed grains.

Secondary products. Cost-based pricing also raises the question of how to account for the value of secondary products, such as oat straw and cottonseed.

Costs were not adjusted in this study for the value of secondary products. Including the value of oat straw, for example, would lower net total economic costs of oat production by about 25 percent (table 11). An important secondary product of cotton is cottonseed. Cotton ginning (removing the seeds) costs are a major component of variable cash expense. In some years, seed value covers ginning costs. In recent years, accounting for the seed value would have lowered net economic costs of producing cotton by 6 to 8 cents a pound, around 10 percent.

Thus, a strong case could be made to account for the value of secondary products, especially for crops such as oats and cotton. However, unadjusted costs are used here to analyze the alternative program to stay as close as possible to current cost of production accounting procedures.

Table 11--Feed grains: Economic costs and farm prices, 1977-86 averages, and relative feed values

Feed grain	Total economic costs, including land	Percentage of corn	Farm price 1/	Percentage of corn	Feed value, percentage of corn 2/
	Dollars/bu	*Percent*	*Dollars/bu*	*--- Percent ---*	
Corn	2.45	100	2.38	100	100
Sorghum	2.57	105	2.29	96	95
Barley	2.72	111	2.10	88	81
Adjusted 3/	2.62	107			
Oats	2.01	82	1.33	56	51
Adjusted 3/	1.51	62			

1/ Farm price during each crop's harvest period.
2/ Bushel-for-bushel basis.
3/ Total economic cost minus value of secondary product.

*Cost-price spiral. Linking support prices to costs raises the
possibility of a cost-price spiral and ever-tighter controls on production.*

Basing support prices on cost of production can lead to a cost-price spiral.
If production costs include land charges, higher market prices under the
alternative program would raise the rental charge. In turn, higher rental
charges would raise the cost of production which would lead to higher support
prices in an upward cycle. Similarly, prices of other inputs may respond to
increased support prices and add to the upward spiral. However, the
alternative program is not likely to result in a cost-price spiral through
1992 (table 12). Although costs are higher with the alternative program,
lower net returns and greater acreage reduction in the initial years offset
much of the effect of higher market prices on the share rental component of
total land rents and on other input prices. After stocks are worked down and
annual production is allowed to increase, a more significant cost-price spiral
is likely to develop.

The fixed costs of production were not adjusted for the mandatory acreage
reductions under the alternative program. The fixed expenses portion of total
economic costs, with cash interest expenses not included, is small.
Increasing fixed expenses per planted acre to account for additional acreage
reduction under mandatory controls would raise total economic costs only
marginally.

*Farm income effects. How do cost-based support prices affect farm
income?*

Target or income support prices have risen relative to total economic costs of
production in recent years (table 13). Meanwhile, falling land rents and
lower interest and energy costs have led to falling costs of production.
Cotton and rice targets were lowered in 1987, and grain targets will fall in

Table 12--Total economic cost (including land) forecasts, current
legislation and alternative program

Crop	Current legislation		Alternative program	
	1988	1992	1988	1992
Dollars/bu				
Corn	2.13	2.29	2.13	2.34
Wheat	3.50	3.74	3.48	3.84
Soybeans	5.15	5.51	5.09	5.54
Dollars/lb				
Cotton	.67	.71	.69	.73
Dollars/cwt				
Rice	7.55	8.05	7.80	8.33

1988, the first declines since the inception of the target price concept in 1973. However, production costs, except for the drought year of 1983, generally have been falling since the early 1980's. Target prices will drop only gradually under current farm legislation, while costs of production are expected to increase slowly in the next few years. Thus, target prices under current farm legislation are likely to continue above total economic costs of production for most commodities. An exception is soybeans where the loan rate could be lowered to $4.50 a bushel under current farm legislation, below total economic production costs.

Farm prices under the alternative program would be substantially above those under a continuation of current farm legislation (table 14). The effects of higher market prices on farm income, however, would be overwhelmed by eliminating target prices and deficiency payments and by larger acreage reduction requirements in the early years of such a program. In later years, as target prices fall relative to economic costs under current legislation and acreage reduction programs are more comparable, farm income differences become much smaller (table 15).

Table 13--Average annual target prices as a percentage of total economic costs

Crop	1978-81 1/	1982-85 2/	1986-90 3/
	Percent		
Corn	95	110	141
Wheat	94	108	123
Cotton	82	107	111
Rice	106	125	153
Soybeans 4/	82	85	91

1/ Crop years covered by the 1977 Act.
2/ Crop years covered by the 1981 Act.
3/ Forecasts under current legislation for crop years covered by the 1985 Act. Minimum target prices for grains and cotton and the minimum soybean loan rate under the Agricultural Act of 1949, as amended, were assumed for 1988-90.
4/ Soybean loan rate as a percentage of soybean total economic costs.

Table 14--Forecasted crop year farm prices under alternative program as a percentage of prices under current legislation

Crop	1988	1992
	Percent	
Corn	122	134
Wheat	136	135
Soybeans	104	109
Cotton	108	111
Rice	119	128

Table 15--Minimum income support relative to total economic costs:
Current legislation and alternative program forecasts 1/

Crop	Income support as percentage of total economic cost			
	Current legislation 2/			Alternative program 3/
	1988		1992	1988-92

Percent

Corn	131	104	100
Wheat	118	98	100
Cotton	114	101	100
Rice	138	120	100
Soybeans	88	82	100

1/ Minimum income support for target price commodities is defined as
follows: Under current legislation, "guaranteed" per acre revenue equals the
sum of (a) the product of the loan rate and yields, and (b) the product of the
maximum deficiency payment (target price minus loan rate) and the program
payment yield; under the alternative program, per acre revenue is the product
of the loan rate and the yield. Minimum income support for soybeans, under
either program, is defined as the product of the loan rate and yield.

2/ Provisions of the Agricultural Act of 1949, as amended, are assumed for
1988-92.

3/ The alternative program assumes support prices are set at 100 percent of
total economic costs each year.

An export program designed to regain and retain a fair share for U.S. exports in world markets while also maintaining domestic prices at total economic cost of production levels would require a two-price system. Virtually all U.S. agricultural exports would have to be subsidized in order to compete in lower priced international markets. Such a program would represent a fundamental change in how the United States trades in international markets and is distinctly different from our current position in General Agreement on Tariffs and Trade (GATT) negotiations arguing for a more competitive international trade environment. The U.S. Government would have to take a prominent role in subsidized agricultural export markets. Further, restrictions on imports of lower priced raw and processed agricultural commodities would be required to limit foreign access to U.S. markets and to prevent the re-importation of subsidized exports.

U.S. competitors would not likely accept any U.S. definition of a fair share of world trade. Therefore, they would probably implement retaliatory trade practices with the result being a highly confrontational trade environment replete with conflict between trading competitors, again in stark contrast to the U.S. goals in GATT negotiations for a more competitive trade environment.

Targeted fair share export levels in this study were based on average export shares over the last 10 years. If an across-the-board export subsidy program were implemented to attain these shares, export subsidies could average $6 to $7 billion annually over the next 5 years. Subsidies initially could be about $5 billion, but would grow to about $8 billion by 1992 as a 4-year transition to fair share levels was completed.

These cost estimates assumed that current cargo preference exemptions for exports under such programs as the Export Enhancement Program (EEP) would also extend to subsidized exports under the alternative program. It was also assumed that domestic prices would be supported at full economic cost of production levels and that import controls would be used to protect higher domestic prices. Finally, it was assumed that competitor resistance to U.S. adoption of such an export program would be limited. Consequently, export subsidy costs could be sharply higher than those indicated here if domestic price goals were raised, if targeted export shares were increased, if cargo preference provisions were to apply to these exports, if a strong retaliatory reaction by export competitors were to result, or if world demand were to stagnate and drive down world commodity prices.

Defining a "Fair Share"

What is meant by a "fair share" of the world market? No generally accepted definition of a fair share exists because countries interpret fairness in terms of their own historical record and national interests. A definition of a fair share for U.S. agricultural products in world trade could be based on guidelines from existing international agreements and practices, on shares that would likely occur in the absence of trade barriers, or on historical shares measured using trends or multi-year averages.

Shares Based on International Agreements

International agreements offer little guidance to defining a "fair share" for U.S. exports. "Equitable share" is specifically mentioned in the original GATT, signed in 1947, and in the subsequent Code on Subsidies and Countervailing Duties agreement implemented in 1980 by the major GATT members. Formal complaints brought before GATT often invoke the concept of equitable share. However, a GATT panel in 1958 decided that there is "no statistical definition of an 'equitable' share in world exports." This finding was repeated in 1982 when a GATT panel again recognized the impossibility of providing a general definition of an "equitable share." Other GATT panels and bilateral trade discussions between GATT member countries have been equally unsuccessful in coming to grips with the concept of a fair share.

Shares Based on a Free Trade Environment

Another approach argues that the fair share of any country in world trade is the share that that country would hold in a free trade environment. Removing subsidies and barriers to trade would mean production and trade flows would be based on the relative competitiveness of countries' agricultural sectors. This approach would be in the spirit of the current round of trade negotiations, which focuses on reducing trade barriers and creating a freer trade environment. However, available analysis on the effects of liberalizing trade is insufficient to develop precise measures. The limited and generally inconclusive analysis available also tends to focus on a limited range of products and on net trade rather than on total product movements. Thus, it was not possible to use this criteria to set export targets.

Shares Based on Historical Patterns

To be adequate, any approach that uses an historical analysis of U.S. trade shares to define a fair share for U.S. exports would need to also be appropriate for other exporters to determine their fair export levels. The approach used would have a representative time period, the same fair share concept for all commodities, and a common reference period for each commodity.

Even so, agreement on a historically based definition of shares is unlikely because every historical period has had agricultural and trade policies that have significantly distorted patterns of agricultural production, consumption, and trade. Also, any historically based definition would be viewed as less fair for some commodities than for others. For example, historically defined fair trade shares for some commodities may be less than current shares, requiring the United States to cut back exports of those commodities. This is most clearly the case with barley, where the Export Enhancement Program has led to a major increase in the U.S. export share over the last 2 years, so that current shares exceed those from most other recent historical periods.

Despite these difficulties, this study used, for illustration purposes, the simple average for the last 10 years (1977/78 to 1986/87) to define a U.S. fair share of world trade (table 16). This period includes both the late 1970s, when U.S. exports and market shares were boosted by large world trade volumes and competitive U.S. pricing, and the early 1980s, when high loan rates and a strong dollar weakened U.S. competitiveness in world trade.

Most commodities' export share based on the most recent 10-year average exceeds the average for the most recent 5-year period and, except for sorghum

Table 16--U.S. share of world markets

Commodity	1985/86	1986/87 1/	Historical averages		
			1977/78 to 1986/87	1982/83 to 1986/87	Peak 5-year 2/

Percent

Commodity	1985/86	1986/87 1/	1977/78 to 1986/87	1982/83 to 1986/87	Peak 5-year 2/
Wheat 3/	29.5	31.1	39.9	35.0	45.9 (1972-76)
Rice	18.8	19.0	20.3	18.5	23.1 (1973-77)
Corn	51.3	62.6	68.6	63.5	74.4 (1976-80)
Sorghum	47.3	63.9	52.8	52.3	77.7 (1962-66)
Barley	3.2	12.3	7.3	7.4	24.5 (1960-64)
Cotton	9.6	25.9	29.1	25.8	32.9 (1979-84)
Soybeans	77.2	72.2	79.3	75.7	91.2 (1968-72)
Soybean oil	18.1	13.6	25.0	19.4	70.0 (1965-69)
Soybean meal	23.8	26.0	29.8	24.1	66.7 (1965-69)

1/ Preliminary.
2/ Peak period in parentheses.
3/ Excludes intra-EC trade.

and barley, exceeds 1986/87 levels. However, the 1977/78 to 1986/87 average shares are significantly below each commodity's peak 5-year average, particularly for soybeans, soybean meal, soybean oil, sorghum, and barley.

Effects of Implementing a Fair Share

The move to a fair share of world trade is assumed to be phased in over a 4-year period. These fair shares of world trade result in higher U.S. exports than likely under current legislation for all commodities except sorghum, cotton, and rice. The sorghum and cotton fair share export projections would change little from those under current legislation. For rice, the transition to a lower fair share of global trade would cause exports to stagnate, in contrast to the increase in exports likely under current legislation due to improved international competitiveness following implementation of the rice marketing loan.

U.S. competitors would not be likely to accept this U.S. definition of a fair share, since it would mean that the United States would regain market shares that were lost in recent years. Export competitors could implement retaliatory trade practices which could lead to a highly confrontational trade environment. Consequently, with U.S. competitors unlikely to voluntarily reduce exports, the increased U.S. market share would have to come from more aggressive marketing entailing lowering prices in world markets until the combination of competitor supply cutbacks and increased quantities demanded in importing countries made room for the larger U.S. export shares. Thus, world market prices for those commodities for which the United States is increasing its market share would drop below the levels that would occur without the highly subsidized U.S. export program. The price cuts would be largest for corn, soybeans, and soybean products, where the required increases in U.S. exports would be the largest.

The U.S. Government would have to significantly expand its regulation and control of agricultural exports under a fair share program. While the options for implementing the program differ, they all mean a fundamental shift in the U.S. approach to trade. The Government would be required to determine annual export levels based on expected levels of world trade and fair shares. A two-price system would be required to effectively separate domestic and export markets. Because domestic commodity prices would be maintained at higher cost-linked levels, the Government would need to subsidize all exports to compete in lower priced international markets in order to meet targeted shares. This subsidization, in turn, would mean that the Government would also have to restrict imports to keep lower priced commodities and processed farm products out of the domestic market. The Government would also need to determine the U.S. response if foreign competitors were to adopt retaliatory measures to U.S. export subsidies.

The institutional mechanisms for implementing a fair share system range from establishing marketing boards to auctioning export rights. A move to marketing boards would be quite costly since it would displace the private marketing structure that already exists. The current structure could be preserved with a system that auctions export rights to private traders, following procedures similar to those currently used for exports under the EEP. A designated agency would establish export targets and then auction export rights for the targeted volumes. The winning bids would be those from firms requiring the smallest subsidies. Payment would then be withheld until the firms prove that the commodities had been delivered to the importer. A similar system would be used for any permitted imports. All exporters and importers would be licensed and could not operate without import or export permits. This would be similar to the system now in place in the European Community.

Export Subsidy Costs

Export subsidies under a fair share scenario would depend on the volume of exports targeted and the gap between domestic and world market prices. Subsidizing exports to increase world market share while holding domestic prices at levels above world market prices could involve substantial Government costs. The larger the targeted market share, the larger both the quantity of exports and the per-unit subsidy required to move this volume in international markets. Export subsidy costs would be relatively greater for a country with a large share of world exports and/or a large differential between domestic and world market prices. The United States has a larger share of the world market than its competitors for most commodities, so its budgetary costs of competing for a fair share would likely also be larger.

Subsidy costs associated with an export program based on 10-year average market shares would grow from about $5 billion in 1988 to about $8 billion by 1992. Costs would increase over time because of growing world trade, increasing U.S. export shares over a transition period, and a widening gap between rising domestic prices and world market prices. These cost estimates further assume that domestic prices are supported at cost-linked levels, that cargo preference exemptions are extended to these exports, and a small level of competitor resistance to such an export program. Subsidies would be higher than indicated here if targeted export shares were higher, if domestic support prices were raised more, if cargo preference provisions were to apply to these exports, or if a strong retaliatory response by export competitors were to result.

Food Aid

This study did not consider food aid, which constitutes a significant part of current U.S. exports (particularly for wheat and vegetable oils). The fair shares were estimated on the basis of total trade, which includes aid, concessional shipments, and commercial sales. The export targets are for all shipments. Assistance to other countries would have to be provided within the export targets and would result in a corresponding increase in budgetary costs. Given the export program design, the United States would export no more than a fair share.

Stocks for many program commodities exceed levels needed to adequately buffer against supply and demand variability. A multi-year transition period would be needed to reduce these stocks. Adequate levels of total carryover stocks thereafter would serve to lessen the effects of yield variability on domestic prices and demand.

Defining Adequate Stocks

Stocks are typically defined as being adequate if they are large enough to effectively absorb the effects of variability in production and use on supplies and prices. Unforeseen supply and demand shocks can cause wide, destabilizing movements in prices that lead to much uncertainty in the market. This uncertainty, in turn, makes marketing, purchasing, and producers' planting decisions more difficult. Fluctuations in crop yields and exports are the two major sources of variability. Domestic demand for most U.S. products is more predictable than either exports or yields.

Variations in Yield

Table 17 shows trend and variability measures in yields for major program crops from 1970 to 1986. Yield variabilities ranged from only 5.5 percent for rice to almost 12 percent for sorghum. This variability suggests that over the sample period actual sorghum yields differed from trend yields by 12 percent or more about one-third of the time. Yield variability translates directly into variation in production. For example, if expected corn production were 7 billion bushels, a yield variability of 8.4 percent means

Table 17--Trends and variability in yields per harvested acre, 1970-86

Commodity	:	Annual increase in yields	:	Yield variability 1/
		Bushels		*Percent*
Wheat		0.637		6.7
Corn		2.903		8.4
Sorghum		.622		11.7
Barley		.875		6.8
Oats		.489		7.4
Soybeans		.426		7.7
		Pounds		
Upland cotton		8.220		11.0
Rice		60.339		5.5
Tobacco		1.056		5.6
Peanuts		30.167		11.4

1/ Measured as the standard error of the estimate divided by the sample mean.

that production could be more than 600 million bushels above or below the estimated production one-third of the time, potentially having a significant effect on prices.

Variations in Export Markets

Export markets have historically represented a large source of variability. Local production shortfalls can make countries that are net exporters one year become net importers the next. This situation can dramatically affect export markets. For example, production shortfalls resulted in large Soviet wheat and soybean purchases in the early and mid-1970's and, more recently, a drought in 1986 resulted in large rice purchases by Brazil.

With the adoption of floating exchange rates and increasingly complex income and trade linkages between countries, domestic and international economic policies also have become important factors in determining year-to-year variations in foreign demand for U.S. exports. Fluctuating currency value can dramatically affect exports. For example, U.S. exports rose sharply after the U.S. dollar was devalued in 1972 and then declined as the dollar strengthened in the early 1980's.

Other provisions of the program analyzed in this study would reduce export variability from historical levels. The United States has traditionally served as a residual supplier with its open markets operating to attract purchases by countries with production shortfalls, thereby concentrating a disproportionate share of global trade variation in U.S. imports. In the program analyzed here, U.S. exports would be subsidized to meet a targeted fair share of global trade, thereby reducing variability. Despite fixed U.S. export shares, exports would still vary somewhat because of year-to-year variations in total global trade. Nonetheless, with export variation reduced, adequate stocks, rather than domestic demand, would absorb the effects of production yield variations.

Government's Role

Table 18 presents the targeted total stock levels (includes reserves plus working stocks) used here to analyze the alternative program. The levels were determined using stock levels used in the Agricultural Act of 1949, as amended, to trigger different acreage reduction program provisions for wheat and feed grains, and using historical stocks-to-use ratios for the other crop commodities. Total ending stocks in 1986/87 greatly exceeded targeted stocks for all commodities. For example, 1986/87 ending stocks for corn were more than twice the size of targeted corn stocks. A transition period would be required to reduce stocks to the targeted levels without creating major market disruptions through large reductions in allowable production.

Stocks buffer the market from the effects of supply and demand shocks by being drawn down when supplies are short and by being built up when supplies are plentiful. Private inventory holders would store commodities if they expected prices to rise enough to make it profitable to hold the commodity for future sale. Government price support programs with Government stocks typically provide price stability by encouraging farmers to place their crops under loan when prices are low and by releasing stocks onto the market when prices are above release levels. Given the limited potential for price movements, it is unclear how large a role the private sector would play in holding stocks. Private stocks could dwindle with Government stockholding expanding.

On average, acreage controls would be set to result in farm prices equal to cost of production levels. However, large unanticipated increases in yields could drive market prices below the program production cost target level. With a nonrecourse loan program, the Government would support prices by setting the loan rate equal to the cost of production target. The Government would acquire any additional production in the event of a larger than expected harvest, and a stricter acreage reduction program would be implemented the following year.

The release of Government stocks would need to be coordinated with production control levels. Stocks could be sold through the market when supplies were short, depending on the relationship between market prices and loan rates. Stocks could also be released from CCC holdings by using commodity-specific or generic certificates, issued to exporters through the export subsidy program or the Conservation Reserve Program.

Table 18--Targeted stock levels

Commodity	Targeted total carryover stocks	1986/87 total carryover stocks	1986/87 stocks as a percentage of targeted level
	--- *Million bushels* ---		*Percent*
Wheat	1,000	1,821	182
Corn	2,000	4,882	244
Sorghum	200	732	366
Barley	150	336	224
Oats	125	133	106
Soybeans	250	436	174
	---- *Million pounds* ----		
Dairy 1/	3,000	6,700	223
Tobacco:			
Flue-cured	1,400	1,752	125
Burley	1,000	1,281	128
Peanuts	850	1,003	118
	----- *Million cwt* -----		
Rice	30	51.6	172
	-- *Million short tons* --		
Sugar	1.350	1.514	112
	---- *Million bales* ----		
Upland cotton	4	4.9	123

1/ CCC net removals, milk equivalent basis; current level shown is calendar 1987 estimate.

Using mandatory production controls to balance supply and use would result in a highly managed agricultural system with an increased Government role in the operation of the sector. Making a mandatory controls program work ultimately depends on reducing production and limiting supplies enough to push market prices up to targeted levels. Little distinction would be made between efficient and inefficient producers, forcing proportionate adjustments in production for all operators in a sector characterized by widely different cost structures. Mandatory controls would constrain the ability of producers to respond to changing economic signals, leading, in the long run, to misallocated resources and reduced efficiency in the sector. In this study, with price supports based on full economic costs of production, mandatory controls would be needed for most program commodities to prevent supplies from exceeding anticipated domestic use, target exports, and stocks requirements. Controls would be most restrictive in the initial years for those commodities where stocks currently exceed targeted levels. Less restrictive controls would be needed in the longer run to prevent a rebuilding of stocks.

Implementation Issues

A number of approaches to controlling supplies are possible. Limited historical experience and practical problems rule out options such as restricting use of inputs other than land. Consequently, it was assumed here that mandatory controls would be implemented either through acreage reduction programs or through marketing quotas. Acreage reduction programs would use some form of allotments to determine the acreage each operator could plant. Marketing quotas would restrict the amount producers could sell in the marketplace, but would not specifically restrict production. Onfarm use of grains to feed livestock on mixed enterprise farms would, presumably, count against marketings to prevent circumventing the intent of mandatory controls.

The Government would need to examine market conditions each year to determine if controls were necessary. If estimated supplies in the absence of production controls exceeded anticipated domestic, export, and stocks needs, mandatory controls would be implemented.

Managing such a program would go beyond the determination of how much to limit production or marketings. Guidelines would be needed on how allotments and quotas would be allocated initially and how they could be transferred subsequently from one operator to another. If controls were to be applied and maintained proportionately across regions and across operator size classes, allotment transfers would need to be prohibited or restricted and separate production cost estimates by region and size class would be required to maintain economic incentives for some of the least efficient producers. Otherwise, enough high-cost producers could eventually quit farming to leave insufficient base acreage to meet production needs. Alternatively, transferring allotments and quotas could be allowed, either coordinated by the Government or through direct sales between producers.

Rules and regulations regarding the use of land in excess of allotments and the use of supplies in excess of marketing quotas also would be needed. Enforcement would require that legal penalties be imposed for exceeding restrictions.

In this study, mandatory controls were implemented by limiting acreage for most program crops. Marketings were controlled in the dairy sector. Controls initially were applied equally across regions and across operator size classes, but transferability of allotments or marketing quotas would be allowed.

Effects of Mandatory Controls

The mandatory controls program analyzed would raise the average cost of producing U.S. farm commodities and change production practices. With voluntary participation for most program commodities under current legislation, acreage reduction tends to be proportionately greater among high-cost producers. With mandatory controls, high-cost and low-cost producers would initially participate equally in acreage reduction programs. Even with transferrable quotas and allotments, producer responses to changing market signals would be constrained because to expand production a producer would have to purchase additional quota or allotment rights from some other producer. Further, whenever cost-linked support prices exceed market-determined prices or lead to different relative prices among crops, economic signals would be distorted. This would lead to a misallocation of resources and reduced economic efficiency. With prices guaranteed to cover costs, the incentive to maximize efficiency would be weakened in the short and medium term.

In the long run, however, the more efficient growers would expand production, and less efficient producers would stop production entirely. Production would become concentrated in the more efficient regions and on larger sized units. Thus, mandatory controls would delay, rather than eliminate, structural adjustment in agriculture.

Mandatory controls also would create an artificial land scarcity which would encourage farmers to intensify input use on permitted acreage. Depending on how much price supports rise and how much acreage is reduced, prices of production inputs could increase over time. Land rents would also be likely to increase. A cost-price spiral could result which would raise domestic market prices, increase the costs of export subsidies, raise production (feed) costs in the domestic livestock industry, and increase retail food prices.

A mandatory controls program with support prices based on full economic costs of production may lead to gross distortions in product prices and additional market inefficiencies. The best example of this is in the feed grain market where grains are normally priced according to relative feed values. On a bushel-for-bushel basis, corn has the greatest feed value, followed in order by sorghum, barley, and oats. If the support prices for these grains were based strictly on costs of production, sorghum and barley would be priced higher than corn, and oats would be priced abnormally high relative to corn and its feed value. The result would be even tighter controls on production of the minor feed grains because their domestic markets would shrink and shift to corn.

Mandatory supply controls would be necessary in this policy setting for most program commodities and would be used for two purposes. First, controls would be used for some commodities in the short run to reduce excessive carryover stocks. Second, controls would be used in the long run if production or marketings would otherwise exceed domestic, export, and stock maintenance requirements.

Land idled by acreage reduction programs (excluding acreage in the conservation reserve) would initially rise for most major crops and could total 70 to 80 million acres in 1988 and 60 to 70 million acres in 1989 (table 19). Most of the increases in land idled represent transitional adjustments needed to reduce excessive carryover stocks for corn and wheat. In subsequent years, idled land could still total 35 to 45 million acres, excluding the conservation reserve, in order to prevent stocks from rebuilding. These levels of idled land would likely exceed those needed under current legislation. Yields on acreage remaining in production would be slightly higher as the least productive land would be idled first and input use on allowable acreage would likely intensify.

Table 19--Idled land for selected crops, alternative program 1/

Commodity	1988/89	1989/90	1990/91	1991/92	1992/93
			Million acres		
Wheat	25.0	25.0	12.0	8.0	8.0
Corn	30.2	21.4	17.0	17.0	17.0
Sorghum	5.6	5.4	5.3	5.3	4.4
Barley	4.9	4.8	3.9	3.9	3.9
Oats	1.9	2.3	2.8	2.8	2.3
Soybeans	3.2	3.2	0	0	0
Upland cotton	3.5	2.7	2.6	3.0	3.0
Rice	1.2	1.4	1.4	1.4	1.4
Total	75.5	66.2	45.0	41.4	40.0

1/ Excludes land idled under the conservation reserve.

The effects of the alternative program would be strong enough and far-reaching enough to eventually reshape the entire agricultural sector. Effects on program commodities would be direct and immediate; effects on nonprogram commodities would be indirect but no less real. Support prices based on full economic costs of production would raise domestic farm prices for most program commodities and reduce domestic use. Exceptions to this are tobacco and peanuts where lower cost-based support prices would lead to increased quantities demanded domestically. Also, although soybean prices would be higher, domestic use would rise because increased crush would be needed to meet larger fair share export levels for soybean meal and soybean oil. The livestock sector would feel the effects indirectly. Livestock production costs would rise because the alternative program would raise feed prices. In response, livestock production would drop, prices would rise, and per capita meat consumption would drop.

Effects on Domestic Demand for Program Crops

Prices based on full economic costs of production under the alternative program would force domestic demand for most major program commodities to adjust to higher prices. Commodity-specific projections for the alternative program from 1988/89 to 1992/93 are detailed in Appendix B and are summarized here.

Feed Grains

Under the alternative program, feed demand for feed grains would be lower than expected under current legislation because higher feed prices would force livestock producers to cut production. Adjustments to higher prices would vary by commodity within the feed grain complex. Feed demand for corn generally would fall less than demand for any other feed grain because corn prices would rise relatively less than other grain prices. Consequently, some livestock producers would switch to less costly corn.

The alternative program, however, would have little effect on domestic food, seed, and industrial (FSI) uses of feed grains. FSI demand for feed grains is much less responsive to changes in feed grain prices.

Wheat

Domestic feed demand for wheat from 1988/89 to 1992/93 under the alternative program would be lower than under current legislation because wheat prices would about be up about a third, thereby rising, on average, relatively more than corn prices. Feed use as a share of total domestic demand for wheat would be reduced because reductions in domestic FSI use of wheat would be less pronounced.

Rice

Annual domestic demand for rice would rise from current levels under the alternative program, but not as much as under current legislation. Domestic use would slightly exceed exports with the alternative program, the reverse of current conditions, reflecting lower exports for rice under the fair share export provisions.

Soybeans

Even though soybean prices would rise, domestic soybean crush would be higher to meet expanded soybean product export requirements. Domestic feed use of soybean meal would be lower than under current legislation, but this drop would be more than offset by the sharp rise in meal and oil exports needed to reach U.S. fair share levels.

Cotton

Domestic mill use for cotton would fall because farm prices would rise. Annual mill use would be less than under current legislation because cost-linked prices would be higher.

Peanuts

Domestic food use of peanuts would rise faster under the alternative program because farm-level peanut prices fall by about a third when they are linked to total economic costs of production. Crush levels would be higher than under current legislation because a relatively constant share of higher production is not of edible-use quality and, thus, must be marketed through crushing channels.

Tobacco

Domestic use of tobacco also would be higher under the alternative program. The boost in domestic use would be the result of substitution of U.S.-grown tobacco for imports due to a 15- to 30-percent drop in support levels for tobacco growers and similarly reduced market prices.

Sugar and Honey

Sugar use would show little change. Although slightly higher prices would stimulate increased sugarcane and sugar beet output, larger production would be balanced by declines in sugar imports. In the long run, sugar import quotas could be sharply reduced. Setting price supports for honey at full average cost of production levels would likely lower the support price to producers from recent levels, but this drop would have only minor effects on domestic honey production and use.

Effects on the Livestock Sector

The alternative program would raise feed prices, forcing livestock producers to adjust feed rations and the mix of products produced, resulting in reduced output. Program provisions regarding the haying and grazing of set-aside acreage would be important in determining the production mix and price effects. Per capita red meat and poultry supplies could be 2 to 4 pounds lower annually. Producer and retail prices would rise as supplies fall.

Cattle

Although feed costs would increase, effects on the cattle sector would be directly affected by haying and grazing provisions. With haying and grazing allowed, production costs would be reduced for weight gained prior to feedlot placement. Expanded forage supplies would replace higher priced grain, which would increase nonfed cattle slaughter. Cattle would move into feedlots at heavier weights as they remain on pasture longer, continuing a practice of

recent years. Total fed cattle marketings would be lower, but total production would be down less. Without haying and grazing, total production would be reduced even more, because nonfed slaughter changes would not offset the fed slaughter declines.

Cattle inventories, which have been stabilizing recently after declining since 1982, would rise at a slightly slower pace under the program alternative, particularly if haying and grazing were not allowed.

Fed cattle prices would be higher than under current legislation. Prices for yearling feeder cattle would not rise as much, however, due to higher feed costs. Demand for lighter weight stocker-feeder cattle could be stronger, particularly from producers with program acreage that could be used for haying and grazing, if allowed.

Hogs

The alternative program would force hog producers to liquidate breeding herds earlier in the current hog cycle in response to higher feed costs. Most adjustments would be made by 1989, with pork production lower through 1992 and hog prices higher. With lower production and higher prices, producer returns under the program alternative would be similar to those under current legislation.

Poultry

The alternative program would reduce poultry production because of higher feed costs, with most adjustments made by 1990. Higher feed costs would accelerate the long-term decline in egg production. The alternative program would raise broiler, turkey, and egg prices, reflecting reduced total supplies of meats.

Dairy

Farm milk prices and commercial use would average about the same as under current legislation from 1989 to 1992. CCC net removals would drop because 3-billion-pounds milk equivalent is used to provide an adequate stock. Milk production would be slightly lower because of higher feed prices. Supply controls would be needed in most years to prevent net removals from exceeding targeted levels.

Wool and Mohair

Higher feed costs under the alternative policy would accelerate reductions in sheep inventories, with inventories dropping an additional 100,000 head (about 1 percent) by 1992. A change in the wool program would have few direct effects on sheep numbers, because marketing limits are not anticipated. However, wool receipts account for 25 to 30 percent of total revenues in sheep production, so any limits on wool marketings could further affect sheep inventories. Mohair would face only minimal effects.

Aggregate effects of the program changes regarding cost-linked support prices, subsidized "fair" export shares, adequate stocks, and mandatory production controls are presented in this section. Net farm income initially would be reduced, reflecting the fact that target prices used to calculate deficiency payments under current legislation are well above total economic production costs used to support prices under the alternative program. Additionally, larger reductions in production would be needed initially with the alternate program than with current legislation. In the longer run, however, net farm income would be higher as cost-linked prices would rise above target prices under current legislation.

Similarly, farm program costs initially would be reduced primarily because eliminating deficiency payments and non-CRP land diversion payments would at first offset the higher cost of export subsidies required to achieve a fair share of world trade. Longer run growth in export subsidy costs, however, would lead to higher farm program costs. Consumer food costs would rise primarily because of higher meat prices as higher feed costs force livestock producers to cut production. Changes in economywide employment requirements would be very small in both the short run and long run. Initially, employment requirements would be somewhat lower, reflecting reduced crop and livestock production and related employment reductions in input and marketing industries. In the longer run, employment gains related to increased exports to meet targeted fair shares would offset employment losses related to reduced livestock production, resulting in a small net increase in employment requirements.

The aggregate effects of the program are highly dependent on domestic price goals and the international trade environment. Most mandatory control programs are usually associated with much higher domestic price goals. If higher parity-linked domestic prices were implemented, for example, farm incomes, food prices, and Government costs (especially export subsidies) would be much higher and mandatory production controls would have to be more restrictive than indicated in this study. Export subsidies could also be higher if targeted export shares were increased, if cargo preference provisions were to apply to these exports, or if a strong retaliatory response by our export competitors were to result.

Farm Financial Conditions

Aggregate farm financial conditions over the next 5 years would be weaker under the alternative program than under current farm legislation (table 20). Net cash and farm incomes would be lower under the alternative program, particularly early in the period. The sector's asset base and net worth would also be reduced along with returns to equity. Market returns at generally higher cost-linked prices would rise, but would not offset the elimination of most direct Government payments.

Cash receipts under the alternative program would be higher, led by increases in crop receipts. Prices received by farmers would also be higher due largely to higher food and feed grain prices. Direct Government payments would decline as most direct payment programs are eliminated, with the exception of the CRP.

Gross income under the alternative program would climb in the long run after initially falling in the early years of the program. Production expenses

would rise primarily for farm-origin inputs, such as feed and feeder livestock. As expenses rise more than gross income, net income would initially be reduced. Net farm income then would grow, and in the long run would likely exceed levels expected under current legislation. This convergence of income under the two programs largely reflects a narrowing of the gap between cost-linked prices and target prices over time. Increases in cost-linked prices raise income under the alternative program while declines in target prices and deficiency payments reduce income under current legislation. Nevertheless, net farm income would average about $3 billion lower annually over 1988-92.

Farm assets would be lower. Land values would be reduced since market receipts at generally higher cost-linked prices would not offset the elimination of most direct Government payments. Farm debt would be slightly higher as reduced borrowing for real estate and operating loans for crop production would be offset by increased operating loans related to higher feed costs in livestock production. Consequently, farm equity would be lower.

Table 20--Farm income projections, alternative program 1/

Item	1989	1992
Billion dollars		
Cash receipts	141	159
Direct Government payments	3	3
Other cash income	5	5
Gross income:		
Cash	149	167
Farm	160	179
Production expenses:		
Cash	104	118
Total	122	138
Net income:		
Cash	45	49
Farm	38	41
Total farm assets	728	741
Total farm debt	139	155
Farm equity	589	587
Percent		
Ratios:		
Payments/gross cash income	2	2
Debt/net cash income	265	314
Debt/asset	19	21

1/ Estimates for 1989 rather than 1988 are given because most direct Government payments for 1987 crops (last year before program changes) will be made in calendar 1988.

Food Prices and Expenditures

The Consumer Price Index (CPI) for food would average less than half a percent higher over 1988-92 under the alternative program (table 21), with total food expenditures up about $4 billion over this period.

Livestock products account for most of the differences in aggregate consumer food prices and expenditures. The alternative policy would push prices for meats and poultry higher beginning in 1989 because of smaller total red meat and poultry supplies. Livestock producers would cut back on production because of higher feed costs. Beef supplies would change the least, particularly if haying and grazing of set-aside acreage are permitted, although the mix would shift from grain-fed to grass-fed (and to a combination of less time in feedlots and more time on pasture) cattle products. Pork production would also drop, with the largest adjustments in 1989, while chicken and turkey production growth would slow.

Cost-linked prices for milk would be below current support prices, dropping farm-level milk prices below levels expected under current legislation for 1989 and 1990. Consumer prices for dairy products would also be lower. But after 1990, cost-linked support prices for milk would rise above support levels expected under current legislation, pushing consumer dairy product prices higher than under current legislation.

Retail food prices and consumer food expenditures would rise even more if domestic feed prices were supported at higher levels than assumed in this study, which would lead to sharper livestock sector adjustments.

Program Costs

Total program costs under the program analyzed here could average several billion dollars lower annually over the next 4 to 5 years, with most of the decline occurring in the near term. Costs of export subsidies and direct payments are affected the most.

The alternative program initially would be cheaper to operate because the elimination of deficiency payments would offset higher costs of export

Table 21--Comparison of CPIs for selected foods, alternative program compared with current legislation

Item	1989	1990	1991	1992
	Percentage difference			
Total food	0.2	0.4	0.2	0.6
Food at home	.2	.5	.3	.7
Meats	1.4	2.1	.9	2.2
Beef and veal	1.4	1.7	1.0	1.9
Pork	1.5	2.7	1.0	2.5
Poultry	.9	.9	.8	.8
Dairy products	-.9	-.2	.2	2.7

subsidies. However, with export subsidy costs growing and deficiency payment savings declining (since deficiency payments would be falling under current legislation), program cost savings would shrink. By fiscal 1993, program costs would be about the same with the alternative program likely costing more in subsequent years. Export subsidy costs rise over time because of the widening gap between world prices and domestic prices and rising export volumes.

Export subsidies and the alternative program would be more costly even sooner if higher support prices than assumed here were implemented, if targeted export shares were increased, if cargo preference provisions were to apply to these exports, or if a strong retaliatory reaction to the export subsidies by our trading competitors were to result.

Economywide Employment

The net effects of the alternative program on economywide employment needs are likely to be small in both the short run and the long run because the volume of aggregate farm production is not greatly affected. Targeted fair share exports would be higher but domestic use would be lower; excess stocks could be used for many commodities to meet expanded export demand until stocks were reduced to adequate levels; and red meat and poultry production would fall. Consequently, economywide employment needs with the alternative program initially would decline due to job losses in the farm sector and in the inputs and marketing industries. In the longer run, however, carryover stocks would have been lowered and could no longer be drawn on to meet higher export targets. Then, economywide employment needs would be somewhat higher as employment gains related to higher exports would offset employment losses related to lower livestock production.

The farm sector would account for about half of any longer run employment gains under the alternative program. Net job gains in nonfarm sectors would be about equally distributed between "backward-linked" (inputs) and "forward-linked" (assembling, processing, and distributing) activities. Estimates of changes in employment needs, however, may not actually result in the creation or loss of jobs. Instead, new job needs may partially be met by the existing workforce working extra hours, with underemployment used where labor requirements are reduced.

III.   This section addresses the portions of the mandate
which direct the Secretary of Agriculture to investigate

*...the changes needed in existing rules and regulations of the
Department of Agriculture to provide for implementation of
mandatory limits on the production of basic agricultural
commodities, including soybeans, and nonrecourse loans on basic
agricultural commodities, including soybeans, that reflect a fair
return to the farm producer at not less than the cost of production...*

45

Implementing an alternative agricultural program with cost-based support prices, mandatory production controls, a fair share of export markets, and adequate stocks would require significant changes in a wide range of USDA rules and regulations. Some issues could be resolved within the framework of, or patterned after, the Food Security Act of 1985. But most issues would require new legislation. Historical experience with acreage allotments and marketing quotas could also be drawn on. Ultimately, even larger scale and more complicated Government intervention in the marketplace for agricultural commodities than exists under current programs would be needed.

Issues include simple questions such as what is meant by "basic agricultural commodities, including soybeans"? Would all commodities currently covered by agricultural programs plus soybeans be covered by the new programs? Or would separate programs continue for dairy, tobacco, sugar, peanuts, honey, wool, and mohair? This section highlights issues and questions that would need to be addressed in order to implement the agricultural policy provisions set forth in the Supplemental Appropriations Act of 1987.

Implementing Cost-linked Support Prices

Nonrecourse loans could continue to be used as under current legislation to implement cost-linked support prices. However, issues related to the determination of the appropriate cost of production measure to use to set supports must be resolved.

o Which cost of production measure should be used to support farm-level prices through nonrecourse loans that reflect a fair return to farm producers? Numerous measures could be used, each with different economic implications for the agricultural sector. These measures include variable cash costs, total cash expenses, and total economic costs.

o Should land costs or returns to management and risk be included in the cost of production measure? Should purchase costs of additional allotments or quotas be included, if allotments or quotas are transferable separately from the land? If these are included, an upward cost-price spiral would be more likely to result. As allotments or quotas acquire value, then costs of production would rise which would lead to higher allotment/quota values and even higher production costs and cost-linked support prices. The gap between domestic and world market prices would increase rapidly and export subsidy costs required to compete in global trade would increase sharply. Production (feed) costs in the domestic livestock industry would rise and retail food prices would be higher.

o Is the national average measure of cost of production appropriate or should adjustments be made for regional cost variation?

o Should adjustments be made for variations in production costs related to operator size classes?

o Should costs be based on actual recent yields or on projected "normal" yields?

o How are costs of production to be determined from year to year? Surveys could be conducted annually at considerable expense. Alternatively, less frequent surveys could be taken with production costs estimated between surveys. In any case, surveyed production costs would have to be verified in some way, again requiring large-scale Government involvement.

Implementing Mandatory Production Controls

Mandatory controls would require legislation authorizing the implementation of such controls and would result in large-scale Government involvement to administer the program. They would also constrain the ability of producers to respond to changing economic signals, leading to misallocated resources and reduced efficiency in the sector. In order to operate such a program, a number of questions would need to be resolved.

What is being controlled? A number of approaches to controlling supplies are possible. Limited historical experience and practical problems rule out options such as restricting use of inputs other than land. Mandatory controls more likely would be implemented either through acreage reduction programs using allotments or through marketing quotas. Allotments usually have been allocated to individual farms on the basis of historical acreage. Restrictions would be needed for land use beyond allotments. Rules regarding haying, grazing, and onfarm animal feeding would be particularly important for livestock producers and mixed-enterprise farms. Marketing quotas would restrict the amount producers could sell in the marketplace, but would not specifically restrict production. Presumably, onfarm use of grains to feed livestock on mixed enterprise farms would count against marketings to prevent circumventing the intent of mandatory controls.

Current and past experience with production control programs could provide some guidelines for implementing mandatory controls. Marketing quotas currently exist for edible-quality peanuts and most types of tobacco. Historically, marketing quotas administered through acreage allotments have been implemented for upland cotton (1938-42, 1950, and 1954-70), rice (1955-73), and wheat (1941-42 and 1954-63). Acreage allotments were implemented for corn in some years during the 1950s (table 22).

Table 22 further shows that allotments also have been implemented in conjunction with marketing quotas. A mandatory marketing quota was applied to all producers if at least two-thirds of producers approved it in a referendum. A national marketing quota is the quantity of a particular commodity that generally provides adequate and normal supplies. This quantity is translated into an equivalent acreage which then becomes a national allotment or base. The national acreage allotment can then be apportioned among States, counties, and individual farms as a newly established allotment or as an adjustment to an existing allotment.

The Government would need to examine market conditions each year to determine if controls were necessary. If estimated supplies in the absence of production controls exceeded anticipated domestic, export, and stock needs, mandatory controls would be implemented.

Managing such a program would go beyond the determination of how much to limit production or marketings. Would controls be applied proportionately across regions and across operator size classes? Would allotments and quotas be transferable among producers? Quotas or allotments would need to be evaluated each year to adjust for producers who quit farming. Provisions for new

47

Table 22—Historical use of acreage allotments and marketing quotas operating through allotments for selected crops

Crops	:	Production control program type											
	:	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
Wheat	:						A				M	M	M
Cotton:	:												
Upland	:						M				M	M	M
Extra long, staple	:										M	M	M
Rice	:						A					M	M
Peanuts	:				M	M	M	M	M	M	M	M	M
Tobacco (major types)	:	M	M	M	M	M	M	M	M	M	M	M	M
Corn (in commercial counties)	:						A 1/				A 1/	A 1/	A 2/

	:	1957–58	1959–63	1964–70	1971–73	1974–75	1976	1977	1978–79	1980–81	1982–87
Wheat	:	M	M	A 3/	A 4/	A 4/	A 4/	A 4/ 5/			
Cotton:	:										
Upland	:	M	M	M	A	A	A	A	5/		
Extra long, staple	:	M	M	M	M	M	M	M	M	M	M
Rice	:	M	M	M	M	A	A 4/	A 4/	A 4/	A 4/	6/
Peanuts	:	M	M	M	M	M	M	M	M	M	6/
Tobacco (major types)	:	M	M	M	M	M	M	M	M	M	M
Corn (in commercial counties)	:	A 2/				A 4/	A 4/	A 4/	5/		

A = Acreage allotments.   M = Marketing quotas operating through allotments.   Blanks = No acreage allotments or marketing quotas in effect.

1/ Corn allotments were effective only in the "commercial corn area" defined by law.

2/ Allotments used only in connection with price-support determination, superceded by larger "base acreages" for commercial corn producing area.

3/ For 1964-70 crops, effective only in commercial wheat States, more than 25,000 acres.

4/ For payment purposes only, if necessary.

5/ The Food and Agriculture Act of 1977 terminated marketing quotas and replaced the concept of allotments with national program acreage and normal crop acreage.

6/ The Agricultural and Food Act of 1981 eliminated acreage allotments for rice and peanuts and marketing quotas for rice. Poundage quotas for peanuts were implemented following grower appproval in a referendum vote in January 1982.

Source: ASCS, Production Adjustment Programs, BI No. 5, May 1976; and ASCS Commodity Fact Sheets for Feed Grains, Wheat, Upland Cotton, Extra Long Staple Cotton, Rice, Peanuts, and Tobacco.

entrants to the sector would also be needed. Related to this, guidelines would be needed on how allotments could be transferred from one owner to another. Prohibiting or restricting allotment transfers would be needed if controls were to be applied and maintained proportionately across regions and across operator size classes, with separate production cost estimates by region and size class required to maintain economic incentives for some of the least efficient producers. Otherwise, enough high-cost producers could exit the industry to leave insufficient base acreage to meet production needs. Alternatively, transferring allotments and quotas could be allowed, either coordinated by the Government or through direct sales between producers.

Rules and regulations regarding the use of land in excess of allotments and the use of supplies in excess of marketing quotas also would be needed. No current legislation authorizes either marketing quotas or regulations to enforce such quotas for the 1988-90 crops, except for tobacco and peanuts. Enforcement would require that legal penalties be imposed for exceeding restrictions. Since all producers would have to comply with program provisions, how would compliance be monitored? What happens if production limits are exceeded? Does excess go into private stocks? Can it be placed under loan or marketed in exchange for a reduced quota in the following year? Alternatively, as long as acreage reduction limitations were complied with, all production could be eligible for nonrecourse loans, with more restrictive program acreage reductions implemented the following year.

What enforcement measures would be needed? Penalties for exceeding restrictions could include fines, jail terms, confiscation of commodities, and exclusion from all program benefits for a specified period. In the current honey program, for example, a person can be declared ineligible for loans, Government purchases, and payments if that person knowingly violates specified rules regarding honey pledged as loan collateral. In 1960, wheat farmers who did not comply with acreage allotments and who were not covered by specific exemptions had to pay the Government 45 percent of the parity price per bushel of the "normal" yield on excess (nonallotment) acres if excess marketings occurred.

Regaining and Retaining Export Market Shares

To implement a policy designed to regain and retain export market shares, the Govenment would first have to determine what is meant by "fair share." Viable alternatives include a 10-year average share, a 5-year average share, and an historical peak. Rules would be needed governing how the Government would determine annual export levels based on expected levels of world trade and fair shares. A two-price system would be required to effectively separate domestic and export markets, with exports subsidized to compete in lower priced international markets in order to meet targeted shares. The Government would also have to restrict imports to keep lower priced commodities and processed farm products out of the domestic market. The Government would also need to determine the U.S. response if foreign competitors were to adopt retaliatory measures to across-the-board U.S. export subsidies.

The institutional mechanisms for implementing a fair share system range from Government marketing boards to auctioning export rights. The United States would not want to move to a marketing board structure, however, because a private marketing structure already exists. The current structure could be preserved with a system that auctions export rights to private traders, following procedures similar to those used for exports under the current EEP. A designated agency would establish export targets and then auction export

rights to those targeted quantities on a regular schedule. The winning bids
would be those from firms requiring the smallest subsidies. Payment would
then be withheld until the firms prove that the commodities had been delivered
to the importer. A similar system would be used for any permitted imports.
All exporters and importers would be licensed and could not operate without
import or export permits. This would be similar to the system now in place in
the European Community.

Implementing an Adequate Stocks Policy

To implement an adequate stocks policy, the Government would need to determine
how to set adequate stock levels. Previous stocks legislation has provided
buffers against variations in production, domestic use, and exports. With
export variation reduced because of the export targets included in this
program, different levels of stocks may be adequate.

Rules would be needed to smooth the transition from current stock levels to
levels that provide for adequate stocks. For commodities with very large
stocks, such as corn, a 1-year or a multi-year transition could be made in
conjunction with severe or moderate production controls.

Rules would be needed to govern the release of Government stocks. The release
of stocks could be affected by the size of existing stocks or by the relation
of market prices to loan rates. Commodity-specific or generic certificates
could be used to release stocks. A determination of who would own the stocks,
where they would be stored, and whether farmers or the Government would pay
for storage costs would have to be made.

Finally, how many years would stocks be permitted to remain imbalanced
relative to the targeted levels if actual yields differed from projected
yields? Would prices be allowed to fall below cost of production levels so
domestic demand could absorb excess supply or would there be a complete
reliance on more restrictive controls in subsequent production periods?

APPENDIX A

SELECTED PARAGRAPHS FROM THE
SUPPLEMENTAL APPROPRIATIONS ACT OF 1987

Office of the Secretary of Agriculture

Investigations of Changes Needed in Farm Programs in Order to Restore the American Farm Economy

To enable the Secretary of Agriculture to investigate whether producers of basic agricultural commodities, including soybeans, favor the imposition of mandatory limits on the production of basic agricultural commodities, including soybeans, that will result in prices for such commodities that provide a fair return to the farm producer at not less than the cost of production, $6,000,000.

To enable the Secretary of Agriculture to investigate the quantity of each basic agricultural commodity, including soybeans, needed by crop year to meet domestic consumption, to maintain an adequate reserve, and to regain and retain our fair share of world markets, $2,000,000.

To enable the Secretary of Agriculture to investigate the changes needed in existing rules and regulations of the Department of Agriculture to provide for implementation of mandatory limits on the production of basic agricultural commodities, including soybeans, and nonrecourse loans on basic agricultural commodities, including soybeans, that reflect a fair return to the farm producer at not less than the cost of production, $2,000,000.

APPENDIX B

PROJECTIONS FOR SELECTED AGRICULTURAL COMMODITIES UNDER THE ALTERNATIVE POLICY

This appendix presents projections for selected agricultural commodities through 1992/93. The forecasts assume that the provisions of the alternative agricultural program set forth in the Supplemental Appropriations Act of 1987 are implemented in 1988/89.

The analysis is developed by determining annual supply, use, and price levels that begin with current conditions and extend through the next 5 years. The forecasts reflect judgmental evaluation by commodity analysts combined with quantitative and qualitative relationships determined historically between important economic, biological, and institutional factors.

Appendix table 1--Wheat supply and use, alternative policy

Variable	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
				Percent			
Farm program:							
ARP/DIV	22.5/2.5	27.5/0	30	30	15	10	10
Participation	85	84	100	100	100	100	100
				Million acres			
Acres idled	19.5	19.3	25.0	25.0	12.0	8.0	8.0
CRP acres	.5	4.4	8.9	12.5	13.5	13.5	13.5
Planted acres	72.0	65.8	57.0	57.0	66.0	70.0	70.0
Harvested acres	60.7	55.9	50.0	50.0	58.0	62.0	62.0
				Bushels/acre			
Yield	34.4	37.6	42.0	42.5	42.0	42.0	42.5
				Million bushels			
Supply 1/	4,018	3,941	3,481	3,336	3,522	3,587	3,652
Beginning stocks	1,905	1,821	1,381	1,211	986	972	1,017
Production	2,092	2,105	2,100	2,125	2,436	2,605	2,635
Use	2,197	2,560	2,270	2,350	2,450	2,560	2,630
Domestic	1,193	1,110	950	940	930	930	930
Export	1,004	1,450	1,320	1,410	1,520	1,630	1,700
Ending stocks	1,821	1,381	1,211	986	972	1,017	1,022
				Dollars/bushel			
Prices:							
Farm	2.42	2.60	3.48	3.61	3.68	3.76	3.84
Loan	2.40	2.28	3.48	3.61	3.68	3.76	3.84

1/ Includes imports in 1986/87-1987/88.

Appendix table 2--Corn supply and use, alternative policy

Variable	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
				Percent			
Farm program:							
ARP/DIV	17.5/2.5	20/15	35	25	20	20	20
Participation	85	88	100	100	100	100	100
				Million acres			
Acres idled	13.5	21.1	30.2	21.4	17.0	17.0	17.0
CRP acres	.3	2.6	3.8	5.0	6.0	6.0	6.0
Planted acres	76.7	65.7	56.2	64.0	68.1	68.1	68.1
Harvested acres	69.2	59.2	51.7	58.5	62.0	62.0	62.0
				Bushels/acre			
Yield	119.3	119.4	124.5	125.5	126.5	128.0	129.5
				Million bushels			
Supply 1/	12,294	11,948	10,560	10,252	10,220	10,181	10,160
Beginning stocks	4,040	4,882	4,123	2,910	2,377	2,245	2,131
Production	8,253	7,064	6,437	7,342	7,843	7,936	8,029
Use	7,412	7,725	7,650	7,875	7,975	8,050	8,175
Domestic	5,908	6,125	5,800	5,775	5,775	5,750	5,775
Export	1,504	1,700	1,850	2,100	2,200	2,300	2,400
Ending stocks	4,882	4,123	2,910	2,377	2,245	2,131	1,985
				Dollars/bushel			
Prices:							
Farm	1.51	1.75	2.13	2.15	2.21	2.29	2.34
Loan	1.92	1.82	2.13	2.15	2.21	2.29	2.34

1/ Includes imports in 1986/87-1987/88.

Appendix table 3—Sorghum supply and use, alternative policy

Variable	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
				Percent			
Farm program:							
ARP/DIV	17.5/2.5	20/15	35	35	35	35	25
Participation	75	83	100	100	100	100	100
				Million acres			
Acres idled	2.3	3.9	5.6	5.4	5.3	5.3	4.4
CRP acres	.4	1.5	2.1	2.8	3.4	3.4	3.4
Planted acres	15.3	11.8	10.4	10.1	9.8	9.8	11.5
Harvested acres	13.9	10.6	9.4	9.1	8.8	8.8	10.5
				Bushels/acre			
Yield	67.7	69.9	68.0	69.0	69.5	70.0	70.0
				Million bushels			
Supply 1/	1,493	1,472	1,321	1,194	1,066	962	967
Beginning stocks	551	732	682	566	454	346	232
Production	942	741	639	628	612	616	735
Use	761	790	755	740	720	730	745
Domestic	563	565	525	500	475	480	490
Export	198	225	230	240	245	250	255
Ending stocks	732	682	566	454	346	232	222
				Dollars/bushel			
Prices:							
Farm	1.37	1.65	2.45	2.48	2.54	2.60	2.67
Loan	1.82	1.74	2.45	2.48	2.54	2.60	2.67

1/ Includes imports.

Appendix table 4—Barley supply and use, alternative policy

Variable	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
				Percent			
Farm program:							
ARP/DIV	17.5/2.5	20/15	35	35	30	30	30
Participation	73	82	100	100	100	100	100
			Million acres				
Acres idled	1.8	2.9	4.9	4.8	3.9	3.9	3.9
CRP acres	.3	1.3	1.9	2.5	3.1	3.1	3.1
Planted acres	13.1	11.0	9.1	8.6	9.1	9.1	9.1
Harvested acres	12.0	10.0	8.3	8.0	8.4	8.4	8.4
				Bushels/acre			
Yield	50.8	52.6	54.5	55.0	55.5	56.0	56.5
			Million bushels				
Supply 1/	942	868	745	660	641	631	631
Beginning stocks	325	336	293	220	175	161	156
Production	611	527	452	440	466	470	475
Use	606	575	525	485	480	475	470
Domestic	470	450	425	400	390	380	375
Export	137	125	100	85	90	95	95
Ending stocks	336	293	220	175	161	156	161
				Dollars/bushel			
Prices:							
Farm	1.61	1.85	2.68	2.72	2.78	2.85	2.92
Loan	1.56	1.49	2.68	2.72	2.78	2.85	2.92

1/ Includes imports in 1986/87-1987/88.

Appendix table 5--Oats supply and use, alternative policy

Variable	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
	Percent						
Farm program:							
ARP/DIV	17.5/2.5	20/15	20	25	30	30	25
Participation	37	44	100	100	100	100	100
	Million acres						
Acres idled	.4	.9	1.9	2.3	2.8	2.8	2.3
CRP acres	.1	.6	.9	1.1	1.4	1.4	1.4
Planted acres	14.7	18.0	17.0	16.5	16.0	15.5	15.0
Harvested acres	6.9	6.9	7.6	7.1	6.5	6.5	7.0
	Bushels/acre						
Yield	56.3	54.0	57.0	57.5	58.0	58.5	59.0
	Million bushels						
Supply 1/	603	542	549	530	505	508	534
Beginning stocks	184	133	116	122	128	128	121
Production	386	374	433	408	377	380	413
Use	471	426	427	402	377	387	397
Domestic	468	425	425	400	375	385	395
Export	3	1	2	2	2	2	2
Ending stocks	133	116	122	128	128	121	137
	Dollars/bushel						
Prices:							
Farm	1.21	1.50	2.08	2.13	2.17	2.23	2.29
Loan	.99	.94	2.08	2.13	2.17	2.23	2.29

1/ Includes imports in 1986/87-1987/88.

Appendix table 6--Soybeans supply and use, alternative policy

Variable	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
			Percent				
Farm program:							
ARP/DIV 1/	--	--	5	5	0	0	0
Participation 1/	--	--	100	100	100	100	100
			Million acres				
Acres idled 1/	--	--	3.2	3.2	0	0	0
CRP acres	.4	2.3	2.5	3.7	4.1	4.1	4.1
Planted acres	60.4	57.4	61.4	61.8	65.0	65.0	65.0
Harvested	58.3	56.4	60.3	60.5	63.7	63.7	63.7
			Bushels/acre				
Yield	33.3	33.7	33.5	34.0	34.4	35.0	35.6
			Million bushels				
Supply	2,476	2,341	2,315	2,357	2,458	2,523	2,541
Beginning stocks	536	436	295	300	267	293	273
Production	1,940	1,905	2,020	2,057	2,191	2,230	2,268
Use	2,040	2,046	2,015	2,090	2,165	2,250	2,310
Domestic	1,283	1,301	1,315	1,330	1,340	1,350	1,360
Export	757	760	700	760	825	900	950
Ending stocks	436	295	300	267	293	273	231
			Dollars/bushel				
Prices:							
Farm	4.80	5.40	5.09	5.21	5.31	5.44	5.54
Loan	4.77	4.77	5.09	5.21	5.31	5.44	5.54

1/ Not applicable before alternative policy implemented.

Appendix table 7—Upland cotton supply and use, alternative policy

Variable	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
				Percent			
Farm program:							
ARP/DIV	25/0	25/0	25	20	20	20	20
Participation	90	89	100	100	100	100	100
				Million acres			
Acres idled	3.2	3.6	3.5	2.7	2.6	3.0	3.0
CRP acres	.1	.9	1.2	1.5	1.8	1.8	1.8
Planted acres	9.9	10.3	10.5	11.1	11.0	11.0	11.0
Harvested	8.4	9.9	9.8	10.4	10.3	10.3	10.3
				Pounds/acre			
Yield	547	700	605	615	625	635	645
				Million bales			
Supply	18.8	19.4	17.3	17.3	17.3	17.5	17.7
Beginning stocks	9.3	4.9	4.9	4.0	3.9	3.9	3.9
Production	9.5	14.5	12.4	13.3	13.4	13.6	13.8
Use	14.0	14.6	13.3	13.4	13.4	13.6	13.7
Domestic	7.4	7.7	7.2	7.0	6.8	6.7	6.6
Export	6.6	6.9	6.1	6.4	6.6	6.9	7.1
Ending stocks 1/	4.9	4.9	4.0	3.9	3.9	3.9	4.0
				Dollars/pound			
Prices:							
Farm 2/	.52	--	--	--	--	--	--
Loan	.55	.52	.69	.70	.71	.72	.73

1/ Includes residual.
2/ USDA is prohibited from publishing cotton price projections.

Appendix table 8--Rice supply and use, alternative policy

Variable	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
	Percent						
Farm program:							
ARP/DIV	35	35	30	35	35	35	35
Participation	91	93	100	100	100	100	100
	Million acres						
Acres idled	1.3	1.4	1.2	1.4	1.4	1.4	1.4
Planted acres	2.4	2.3	2.8	2.6	2.6	2.6	2.6
Harvested acres	2.4	2.3	2.8	2.6	2.6	2.6	2.6
	Hundredweight/acre						
Yield	56.5	54.8	60.0	61.0	62.0	63.0	64.0
	Million hundredweight						
Supply 1/	213.3	181.9	192.1	190.7	190.9	192.7	195.1
Beginning stocks	77.3	51.6	24.1	32.1	29.7	28.9	28.7
Production	133.4	127.7	168.0	158.6	161.2	163.8	166.4
Use	161.7	157.8	160.0	161.0	162.0	164.0	165.0
Domestic 2/	76.3	78.8	80.0	81.0	82.0	84.0	85.0
Export	85.4	79.0	80.0	80.0	80.0	80.0	80.0
Ending stocks	51.6	24.1	32.1	29.7	28.9	28.7	30.1
	Dollars/hundredweight						
Prices:							
Farm	3.80	7.50	7.80	7.89	8.02	8.17	8.33
Loan	7.20	6.84	7.80	7.89	8.02	8.17	8.33

1/ Includes imports.
2/ Includes residual.

Appendix table 9--Flue-cured tobacco supply and use, alternative policy

Variable	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
				Thousand acres			
Planted	308	327	375	436	525	575	550
Harvested	308	327	375	436	525	575	550
				Pounds/acre			
Yield	2,091	2,099	2,100	2,100	2,100	2,100	2,100
				Million pounds			
Supply	2,625	2,437	2,335	2,260	2,328	2,461	2,516
Beginning stocks	1,958	1,752	1,547	1,345	1,225	1,253	1,361
Marketings	667	684	788	915	1,103	1,208	1,155
Use	873	890	990	1,035	1,075	1,100	1,110
Domestic	480	495	565	575	585	590	590
Export	393	395	425	460	490	510	520
Ending stocks	1,752	1,547	1,345	1,225	1,253	1,361	1,406
				Dollars/hundredweight			
Prices:							
Average to growers	152.7	158.8	135.0	129.0	125.0	123.0	125.0
Support	143.8	143.5	107.0	110.0	113.0	116.0	119.0

Appendix table 10—Burley tobacco supply and use, alternative policy

Variable	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
	Thousand acres						
Planted acres	211	225	260	290	350	330	340
Harvested acres	211	225	260	290	350	330	340
	Pounds/acre						
Yield	1,936	2,012	2,200	2,200	2,200	2,200	2,200
	Million pounds						
Supply	1,848	1,761	1,753	1,750	1,835	1,846	1,854
Beginning stocks	1,428	1,281	1,181	1,113	1,065	1,120	1,106
Marketings	420	480	572	637	770	726	748
Use	567	580	640	685	715	740	755
Domestic	402	415	460	475	485	495	495
Export	165	165	180	210	230	245	260
Ending stocks	1,281	1,181	1,113	1,065	1,120	1,106	1,099
	Dollars/hundredweight						
Prices:							
Average to growers	156.5	158.0	144.0	137.0	133.0	136.0	139.0
Support	148.8	148.8	121.0	124.0	127.0	130.0	133.0

Appendix table 11--U.S. sugar supply and use, alternative policy

Variable	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
				Thousand acres			
Beets:							
Planted acres	1,231.7	1,275.0	1,280.0	1,285.0	1,290.0	1,298.0	1,308.0
Harvested acres	1,191.3	1,248.3	1,255.0	1,260.0	1,265.0	1,275.0	1,283.0
Cane:							
Harvested acres	750.7	783.0	780.0	780.0	785.0	790.0	800.0
				Tons/acre			
Yields:							
Sugar beets	21.2	22.2	21.4	21.4	21.5	21.5	21.5
Sugarcane	38.5	38.4	38.5	38.5	38.5	38.5	38.5
				Thousand short tons			
Production:							
Sugar beets	25,224	27,666	26,857	26,964	27,198	27,413	27,585
Sugarcane	28,936	30,029	30,030	30,030	30,223	30,415	30,800
				Thousand short tons, raw value			
Supply	10,422	9,993	9,770	9,869	9,960	9,982	10,075
Beginning stocks	1,652	1,514	1,438	1,445	1,458	1,470	1,412
Production	6,886	7,175	7,100	7,150	7,200	7,280	7,360
Beet Sugar	3,653	3,850	3,650	3,675	3,700	3,740	3,780
Cane Sugar	3,233	3,325	3,450	3,475	3,500	3,540	3,580
Imports 1/	1,884	1,304	1,232	1,274	1,302	1,262	1,302
Use 2/	8,908	8,555	8,325	8,411	8,490	8,570	8,650
Domestic	7,863	7,965	8,045	8,125	8,205	8,285	8,365
Exports 3/	597	405	100	100	100	100	100
Ending stocks	1,514	1,438	1,445	1,458	1,470	1,412	1,425
				Cents/pound			
Prices:							
World (No. 11)	6.30	7.00	12.00	13.50	13.50	20.00	18.00
New York 4/	21.80	21.59	22.05	22.81	23.64	24.40	25.20
Grower prices:							
Sugar beets	15.60	15.67	15.91	16.46	17.06	17.60	18.18
Sugarcane	12.77	12.83	12.94	13.40	13.89	14.35	14.83

1/ 1986/87 includes quota of 1.205 million short tons. Projected imports do not necessarily reflect the quota determination by the Secretary which will be made pursuant to Headnote 3 of Subpart A, Part 10 of Schedule 1 of the Tariff Schedules of the United States. 2/ Includes refining loss and miscellaneous nonfood use. 3/ Exports are lower in 1988/89-1992/93 due to reduced re-exports. 4/ Assumes market price at least as high as forecast market stabilization price (MSP).

Appendix table 12--Peanut supply and use, alternative policy

Variable	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
				Thousand acres			
Planted acres	1,573	1,527	1,500	1,500	1,515	1,535	1,570
Harvested acres	1,537	1,517	1,474	1,475	1,486	1,507	1,535
				Pounds/acre			
Yield	2,407	2,359	2,850	2,875	2,900	2,925	2,950
				Million pounds			
Supply	4,548	4,584	5,002	5,093	5,158	5,269	5,372
Beginning stocks	845	1,003	800	851	847	859	842
Production	3,701	3,579	4,200	4,240	4,309	4,408	4,528
Imports	2	2	2	2	2	2	2
Use	3,545	4,200	4,151	4,246	4,299	4,427	4,522
Domestic food	2,073	2,130	2,295	2,360	2,427	2,496	2,566
Seed	214	205	205	207	210	215	218
Residual 1/	81	256	244	254	213	241	232
Crush	514	494	609	615	627	641	659
Exports	663	700	798	810	822	834	847
Ending stocks	1,003	800	851	847	859	842	850
				Cents/pound			
Prices:							
Season average	28.70	26.50	18.00	19.00	19.00	20.00	20.00
Loan rates:							
Quota	30.37	30.37	18.00	19.00	19.00	20.00	20.00
Additionals 2/	7.49	7.49	--	--	--	--	--

1/ Includes onfarm use, losses, and undetermined use.
2/ Not applicable after alternative policy implemented.

Appendix table 13--Dairy supply and use, alternative policy

Variable	1987	1988	1989	1990	1991	1992
			Thousand head			
Supply:						
Milk cows 1/	10,430	10,410	--	--	--	--
			Pounds			
Milk per cow 1/	13,705	13,980	--	--	--	--
			Billion pounds			
Milk production	143.0	145.5	144.9	147.0	149.3	152.2
Use:						
Commercial	136.3	139.5	141.9	144.0	146.3	149.2
Net removals	6.7	6.0	3.0	3.0	3.0	3.0
			Dollars/hundredweight			
Prices:						
All milk, farm	12.55	11.80	11.30	11.60	11.55	11.65
Price goal 2/	--	--	11.30	11.45	11.55	11.65

1/ Not projected when production controls are in effect.
2/ Equivalent to support prices under the current program of $9.80 in 1989, $9.95 in 1990, $10.05 in 1991, and $10.15 in 1992.

Appendix table 14--Wool supply and prices, alternative policy

Item	1987	1988	1989	1990	1991	1992
			Thousand head			
Sheep shorn	11,000	11,941	11,893	11,654	11,496	11,339
			Pounds			
Weight per fleece	7.9	8.0	8.0	8.0	8.0	8.0
			Million pounds			
Total wool production	88	96	96	94	93	92
Sheared wool	87	95	95	93	92	91
Pulled wool	1	1	1	1	1	1
			Dollars/pound			
Price	1.27	1.31	1.56	1.66	1.70	1.70

Cargo preference provision. Legislation requiring that a specified share (75 percent starting April 1988) of certain U.S. exports be carried on U.S. flagships. This provision generally raises the cost of U.S. exports because U.S. flagship rates are generally higher.

Conservation Reserve Program (CRP). A program implemented under the Food Security Act of 1985 that has both erosion reduction and surplus production control objectives. Producer may bid to place their highly erodible cropland in conserving uses for 10 years and receive annual payments from the Government for doing so.

Deficiency payment. Government payment made to producers who participate in annual price support and production adjustment programs for feed grains, wheat, rice, or cotton. The payment rate is per bushel, pound, or hundredweight, and is based on the difference between a target price and the higher of either the market price over a prescribed period of time or the loan rate.

Fixed cash costs. Fixed cash costs are operator expenses incurred regardless of the level of production. They account for a portion of total cash costs, with variable cash costs accounting for the remainder. Fixed cash costs include general farm overhead, taxes and insurance, and interest paid on real estate and nonland debt.

Loan rate. The commodity-specific and county-specific dollar amount per unit (bushel, bale, or pound) that the Commodity Credit Corporation (CCC) uses in making nonrecourse price support loans to producers.

Nonrecourse loan. Eligible producers may obtain a loan from the CCC by pledging stored crops as collateral. These loans enable producers to hold their crops for later sale. The producer can settle the loan by either paying back the loan plus accrued interest or turning the stored commodity over to the Government when the loan is due.

Target price. The unit value established by statute for wheat, feed grains, rice, and cotton for use in calculating income-supporting deficiency payments.

Total cash costs. Total cash costs add fixed cash costs to variable cash costs and include all interest payments on real estate and nonland debt. They include only expenses for hired labor; they do not include capital replacement, land rentals, or unpaid labor.

Total economic costs. Total economic costs cover all fixed and variable production costs for an operator with full ownership of the land and other capital assets, as well as a competitive return on those owned assets and charges for both paid and unpaid labor. Cash interest payments associated with real estate and nonland debt are not included because full ownership of land and other capital assets is assumed. Total economic costs represent the longrun breakeven price required with full ownership to continue producing a crop. Total economic costs do not include any return to management and risk.

Variable cash costs. Variable cash costs are those costs related to the level of production. They account for a portion of total cash costs, with fixed cash costs accounting for the remainder. Variable cash costs per unit include such items as seed, fertilizer, repairs, hired labor, and custom operations. Variable cash costs reflect the minimum price needed, with a given yield, to make crop production worthwhile in the short run.